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Preface of the Minister of Health

In the past few years, there have been successfully implemented several programs and reforms aiming at reconstructing the Albanian health sector along with economic improvement in general. However, there is a pressing need to further reorganize health services in Albania on a cost-efficiency basis. Furthermore, there is an obvious need to strengthen and improve public health services in Albania in order to meet the challenges of the burden of diseases related to socioeconomic, lifestyle and environmental risk determinants.

Applied research is crucial for evidence-based policy formulation. Conclusions from research, however, should be drawn within a reasonable time in order to influence and guide health policy and planning of services. Publication in the Albanian Medical Journal (AMJ) would provide a prompt and effective means for communication and dissemination of the research work.

The AMJ should offer assistance and support to local and national health authorities in Albania, as well as non-governmental agencies, in analysis and policy formulation needed to improve the health status of the Albanian population.

The current initiative of the editorial board of the AMJ aims at considerably improving the content and format of this scientific journal. It coincides with the 100th anniversary of the independence of Albania and, therefore, we strongly and warmly support this laudable endeavour!

On behalf of the Ministry of Health, I wish the best of luck to the AMJ!

Dr. Vangjel TAVO

Minister of Health, Republic of Albania

Preface of Director of the Institute of Public Health

The Albanian Institute of Public Health looks forward to a new generation of public health specialists capable of analyzing health problems of the 21st Century, setting priorities for intervention, efficiently managing those resources available to health, providing effective health services in communities and assisting and managing promptly human disasters either natural (such as floods, earthquake), or artificial (war, civil uprising, or massive economic collapse).

Research activities published in the Albanian Medical Journal (AMJ) aim to promote academic and applied knowledge of the health situation in Albania and in the region, to identify and analyze the major health problems and to set priorities in order to improve the health of communities, using existing resources effectively at international standards.

Nevertheless, the AMJ should strive for and interdisciplinary and multi-professional approach engaging health scientists, social and behavioural researchers, as well political and economic researchers involved in health care and health system reforms. The international expertise and best practices are highly desirable and urgently needed to improve the content and quality of the AMJ. In addition, ethical orientation and international dimension should be core guiding principles of the journal. From this perspective, a world-view approach should be the unifying element of all contributions and, again, the international experiences are required in this regard as well. Historical as well as ethical perspectives are important to establish a comprehensive context for a high-quality peer-review scientific journal.

Despite the tremendous difficulties for conducting research, attempts should be made from health professionals and researchers in Albania to include research as part of daily activities on topics relevant to health of the population. This is important to provide the country with a research capacity related to analysis of real public health problems. The impact and benefit of research activities should always be directed towards the population, with realistic targets and conducted within accepted international ethical standards.

In this 100th anniversary of the Albanian independence, I wish a great success to the AMJ!

Prof. Dr. Enver ROSHI

Director, Institute of Public Health

Preface of the Editors-in-Chief

A new generation of medical doctors, public health specialists, other health professionals and social workers in Albania should be capable not only to conduct research but also to share their work with the professional community by publishing it. Publication requires time and effort, but it's a core element of communication and dissemination of research findings and, therefore, this initial publication of our journal in the English language aims to facilitate this long, yet rewarding process.

This issue of the Albanian Medical Journal (AMJ), published for the first time in the English language, includes original research manuscripts, review articles, brief communications and selected case-reports. The contributions cover a wide range of public health disciplines, social and communication sciences, as well as clinical medicine subjects.

Salient public health topics dealt with in this issue concern environmental health, lifestyle/behavioural determinants of health, quality of health care services, health literacy, reproductive health, and other relevant and contemporary public health topics.

Conversely, topics related to clinical medicine cover a wide array of ill-health conditions including management of diabetes, nephropathy, tuberculosis, HIV/AIDS, other major infectious diseases, as well as contemporary topics related to surgical procedures in different medical specialties including abdominal, orthopaedics, or gynaecological surgery.

We are grateful to all contributors of this issue of the journal and look forward to our future collaboration in order to foster and promote the AMJ!

Prof. Dr. Eduard KAKARRIQI and Prof. Dr. GENC BURAZERI

Editors-in-chief

AMJ
ALBANIAN MEDICAL JOURNAL

CONTENTS

4-2012

ORIGINAL RESEARCH

REVIEWS

BRIEF COMMUNICATIONS

CASE REPORTS

DIABETES PREVALENCE IN ALBANIAN ADULT POPULATION.

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Abstract

Aim: Albania is undergoing deep reforms since the collapse of communism. Besides the reorganization of state structures the country is experiencing deep transformations in terms of lifestyle and other population characteristics, which implicates the emerging and potentiation of risk factors for diabetes. Our aim was to assess the prevalence of diabetes in the changing adult population of Tirana.
Methods: A cross-sectional survey was carried out in Tirana in 2012 involving a representative sample of 850 adults aged 18 years or older. Information regarding basic socio-demographic and socioeconomic factors, as well as data regarding the presence of diabetes mellitus were collected via face-to-face interviews using a structured questionnaire.
Results: The overall prevalence of diabetes was 11.5%. Diabetes prevalence was significantly higher among older subjects (18.6%) compared to younger ones (2.3%), among those with lower education (20.9%) compared to highly educated persons (6.9%) and it was negatively and significantly associated with income level and social status.
Conclusions: This survey provided recent information regarding the prevalence of diabetes and its distribution according to socio-demographic and socioeconomic factors in Albania. Diabetes prevalence is increasing thus reflecting the trends of risk factors. Immediate measures should be taken to prevent diabetes and control its complications through education in order to alleviate its burden on individuals and society as a whole.

Keywords: Albania, diabetes, socioeconomic status, Tirana.

Introduction

The number of people living with diabetes is rising in every country and half of people with diabetes are not aware that they suffer from type 2 diabetes (1), which comprises around 90% of all diabetes cases (2). Diabetes is associated with significant concerns to the health of the individuals and also poses a tremendous burden to the health systems of any nation as the expenses related to direct and indirect costs of diabetes take away major amounts of money (1, 3-4) which could be used for other public health or health improvement efforts. The prevalence of diabetes is different in different parts of the world, ranging from 4.3% in Africa up to 10.9% in Middle East and North Africa among people aged 20-79 years in 2012 (1). Diabetes prevalence is associated with a number of socio-demographic and socio-economic factors, such as age, education, occupational status and income (5). Diabetes has been studied extensively in USA, Europe and Asia (6-8) but data for Albania are still limited and, in the best of cases, contradictory. A study in 2001 among Tirana adults revealed that the prevalence of diabetes was 6.3% (9) among adults aged 25 years or older and one third of diabetics didn't know that they had the condition. Another study among people aged 65 years or older conducted in Albania in 2007-2008 reported the prevalence of diabetes at 18.7% (10). The prevalence of diabetes was found to be 4.2% in 2006 among 3709 volunteers in southwest Albania (11). According to the International Diabetes Federation, the prevalence of diabetes was estimated to be at 4.8% in 2007 and 7.5% in 2025 (12). At a recent conference presentation, it was stated that the prevalence of diabetes in Albania has more than doubled during 1990-2010 and the figure is on the rise, mainly due to the aging of the population, urbanization process, changes in lifestyle including obesity and physical inactivity (13).

In this context, the aim of our study was to assess the prevalence of diabetes in a representative sample of adults in Tirana, Albania.

Methodology

A cross-sectional study was conducted in Tirana in April-July 2012 including a representative sample of 845 individuals aged e"18 years (500 women, mean age: 49.7±18.8 years; 345 men, mean age: 51.3±18.4 years).

Data on socio-demographic and socioeconomic factors as well as information about other life-style factors (feeding habits regarding fruit, vegetables, meat, sweets and salt consumption frequencies) were collected via face-to-face interviews. Education years were recoded into a three category variable: *low* (0-8 years of education); *middle* (9-12 years of education) and *high* (e"13 years of education). Age was categorized into three categories: *18-35 years*, *36-50 years* and *>50 years*. The respondents self-reported information about their social status into three categories: *low*, *middle* and *high*. Finally, the employment status comprised these categories: *employed*, *unemployed*, *student* and *retired*. The data collection tool comprised a structured questionnaire. We also measured the anthropometric indices such as weight, height and waist and hip circumferences.

To estimate the prevalence of diabetes, the participants were asked the following question: "*Has a doctor ever told you that you have diabetes*?". If a participant would answer "*Yes*" to this question, another question would follow: "*If Yes, how do you treat it*?" with the answering options being: "*by special diabetic diet*" and "*by medicaments*". The persons answering "*by medicaments*" could then detail what kind of medicaments they were using to control their diabetes. In addition to ask the subjects about their own diabetes, they were also asked to provide some information about their family history about diabetes. In this regard, all the participants were asked the following question: "*Do you think your mother, and/or father, and/or your sisters or brothers have had or have diabetes*?".

Chi-square test was used to compare differences in diabetes prevalence levels between different socio-demographic and socioeconomic groups of study participants. A p-value of d"0.05 was

regarded as statistically significant. Spearman's rho coefficient was used to assess the direction and the strength of the bivariate associations between diabetes prevalence with socio-demographic and socio-economic variables. Statistical Package for Social Sciences (SPSS), version 15.0, was used for all the statistical analyses

Results

Overall, 95 respondents were ever told by a doctor that they had diabetes. Therefore, the overall prevalence of diabetes in our sample was 11.5%. Among those who had diabetes, 12.5% treated it by using special diabetic diet whereas the remaining 87.5% of respondents treated it by using different medicaments. About 80% of diabetic persons who were using medicaments to control their diabetes reported to be using different glucose lowering drugs whereas the remaining 20% reported to use insulin to keep their glucose level under control. As regards the family history for diabetes, 12% of the respondents mentioned that their mother has or has had diabetes, 10% reported their father to have diabetes and 12.1% said that at least one of their brothers or sisters experienced diabetes (data not shown).

The prevalence of diabetes was similar among men and women: 12.3% of men and 11.0% of women reported to have diabetes, and the difference is not statistically significant (P=0.559). Individuals belonging to the oldest age-group reported significantly higher rates of diabetes compared to their younger counterparts belonging to 18-35 and 36-50 years age-groups: 18.6% vs. 2.3% and 5.8%, respectively (P<0.001). Diabetes prevalence was significantly lower among highly educated individuals, 6.9% of whom reported to have diabetes and higher among low educated individuals among whom the prevalence was 20.9% (P<0.001). Diabetes prevalence was negatively associated with the income level: the frequency of the disease was significantly higher among lower income level individuals compared to higher income level individuals: the prevalence of diabetes was 17.7% among low income level individuals vs. 7.5% among high income level individuals and this difference showed to be of borderline significance (P=0.042). A similar negative but significant association between diabetes prevalence and social status was noticed (see Table1) with the disease being more prevalent among lower social status individuals (P=0.043).

Table 1. Distribution of self-reported diabetes by socio-demographic characteristics

Variable		Has a doctor ever told you that you have diabetes?		
	Total	Yes	No	P-value
Sex:				
Men	334 (100.0)*	41 (12.3)	293 (87.7)	0.559
Women	493 (100.0)	54 (11.0)	439 (89.0)	
Age-group:				
18-35 years	222 (100.0)	5 (2.3)	217 (97.7)	<0.001
36-50 years	138 (100.0)	8 (5.8)	130 (94.2)	
>50 years	435 (100.0)	81 (18.6)	354 (81.4)	
Educational level:				
Low	134 (100.0)	28 (20.9)	106 (79.1)	<0.001
Middle	311 (100.0)	39 (12.5)	272 (87.5)	
High	347 (100.0)	24 (6.9)	323 (93.1)	
Income level:				
Low	96 (100.0)	17 (17.7)	79 (82.3)	0.042
Middle	512 (100.0)	61 (11.9)	451 (88.1)	
High	173 (100.0)	13 (7.5)	160 (92.5)	
Social status:				
Low	88 (100.0)	15 (17.0)	73 (83.0)	0.043
Middle	627 (100.0)	75 (12.0)	552 (88.0)	
High	59 (100.0)	2 (3.4)	57 (96.6)	
Employment status:				
Employed	336 (100.0)	15 (4.5)	321 (95.5)	<0.001
Unemployed	156 (100.0)	15 (9.6)	141 (90.4)	
Students	62 (100.0)	1 (1.6)	61 (98.4)	
Retired	256 (100.0)	62 (24.2)	194 (75.8)	

* Number of individuals and row percentages (in parenthesis). Discrepancies in totals are due to missing values.

In bivariate correlations, diabetes was positively and significantly associated with education and the association is moderate (Spearman's rho=0.232, P<0.01) whereas it was negatively associated with education (Spearman's rho=-151, P<0.01), with social status (Spearman's rho=-0.087, P<0.05) and income level (Spearman's rho=-0.089, P<0.05).

Discussion

This study provides recent information regarding the prevalence of diabetes in the urban adult population of Albania and its distribution across socio-demographic and socioeconomic factors.

The prevalence of diabetes in our study was 11.5%, which is relatively higher compared to other figures reported by previous studies. A study conducted more than a decade ago reported a prevalence of 6.3% among adults aged 25 years and older (9). This is clearly lower than the 2012 prevalence reported by us. The discrepancies could be attributed to many factors, including changes in lifestyle with clear trends towards increasing of the prevalence of diabetes risk factors (13) such as: overweight and obesity rates (14-15), increasing rates of physical inactivity (14,16), increasing rates of alcohol (17) and tobacco use (18) during a 12 years' time span. Another source which might explain this discrepancy could be routed in the different definitions of plasma glucose cut-off points that indicate diabetes mellitus, used in both studies. For example, the 2001 study by Shapo et al. considered as diabetics all persons having a fasting plasma glucose level of e"7.8 mmol/L whereas recently the guidelines indicate the level of e"7 mmol/L as a threshold for diabetes mellitus (19). Therefore, the discrepancy between the reported prevalence could be partly attributed to artifacts. The study among persons aged 65 years or older in Albania reported a higher prevalence rate of diabetes, which is explainable by the positive relationship that exists between diabetes prevalence and age (9,20) found in our study as well.

The associations of diabetes prevalence with the educational level, income level, social status and occupational status are in concordance with previous studies (5-6).

There is now grounded evidence that obesity is becoming an issue of increasing concern to the Albanian health system, as in other parts of the world (1, 3-4). It is clear that socioeconomic inequalities could boost the burden of diabetes across certain population groups. Determined and well-guided efforts are needed in order to reduce such disparities in the Albanian population. Since all things are interconnected, then, let's say, measures to improve and enhance the education of the people will have an effect on their income and finally this could affect the prevalence of diabetes as well. From the public health perspective, urgent measures need to be taken in order to prevent diabetes mellitus and its complications, especially in the context of booming of diabetes' risk factors due to changes in life-style in our country. Since type 2 diabetes has strong, modifiable non-genetic components, then changes in life-style could result in major benefits in terms of disease prevention (21) and prevention of complications among those already living with the disease (22-23).

A potential methodological limitation could arise from the sample study. Our sample is representative of the urban adult population of Tirana aged 18 years or older and therefore the representativeness for the whole Albanian population of this age-group is not guaranteed. However, since Tirana represents a wide mix of sub-cultures and population groups arrived from all parts of Albania then caution inference could be feasible. A strong aspect of the present survey is the nature of the information collected. We asked the participants to answer about their education years, age, and occupation, which are all easy to be remembered and there is little room for information bias.

In summary, diabetes prevalence is high in Albania and, confronting with other data sources, it is increasing. The disease is more frequent among least educated, among older people and among those with lower income level. It is necessary to take the appropriate preventive measures in order to alleviate the burden of diabetes in Albania.

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A PARTICIPATORY PEER REVIEW ASSESSMENT OF QUALITY OF HOSPITAL CARE FOR MOTHERS AND NEWBORN BABIES IN ALBANIA IN 2011

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ABSTRACT

Aim: In Albania progress in maternal and neonatal outcomes has been slow despite good access to institutional births, suggesting deficiencies in the quality of care. In 2011 it was carried out an assessment of the quality of maternal and newborn care in 4 Maternity Hospitals using a peer review, participatory and action oriented approach.
Methods: A standard–based tool, covering over 600 items grouped in 13 main areas ranging from supportive services to case management was used to assess a sample of 4 maternity hospitals in 2011 in Albania. Sources of information were: hospital statistics, medical records, direct observation of cases and interviews with staff and patients. A score (range 0 to 3) was awarded to each item and area of care. The assessment was conducted by a multidisciplinary team of international and national professionals. Local managers and health staff provided the necessary information and were involved in discussing the findings and priority actions.
Results: Overall, quality of care was found to be substandard in 12 areas of care assessed in 4 maternity hospitals. Neonatal care scored better than obstetric care. There is still insufficient capacity to analyse and interpret statistical data and use them as a guide for action. Actions to improve quality of care including hospital staff suggestions and views of mothers on different aspects of care, were identified at facility and at central level and structured according to main health system functions.
Conclusion: Quality of care is a key issue to improve maternal and neonatal outcomes in Albania where the access to birth institutions is nearly universal. This Albanian exercise proved that the peer review approaches that ensure the participation of professionals and local managers and consideration of patients' experiences can be used country-wide as a component of a quality improvement strategy in perinatal health.

Key-words: maternity hospitals, participatory peer review assessment, quality of care.

Assessment tool

The Tool (WHO, 2009) through a peer assessment collects data from the main areas with a great impact on maternal and newborn mortality and morbidity, as well as on maternal and neonatal wellbeing in order to identify the areas with poor or substandard care and the priority areas and/or actions for interventions ensuring the involvement of managers, staff and patients at facility level. The Tool is a structured indicator and standard based checklist covering 13 main areas: Hospital support systems, Maternal and neonatal ward, Care for normal labor, Caesarian section, Maternal complications, Routine neonatal care, Sick newborn care , Advanced newborn care, Emergency Care, Infection control and supportive care, Monitoring and follow up, Guidelines and auditing and Access to hospital care. Each area includes from 10 to over 50 items, totally around 600 items. The majority of items are devoted to case management. (Tamburlini et al. 2011) Semi-structured interviews with mothers provides information on the quality of the contact between the mothers and their caregivers and quality of information and counsels provided to them, as well as it explores what can be done to improve their wellbeing and that of their baby.

Involvement of hospital managers and staff in identifying the key areas/actions for interventions is ensured from semi- structured interviews with them. These interviews explore the knowledge and the use of guidelines, provide information on organizational issues, on critical areas for interventions and on immediate mid and long term improvements that should happen.

The Tool uses four sources of information: hospital statistics, patients files, direct observations of case management, interviews with mothers and staff.

Each item is evaluated with the information gathered by different sources to reach an_overall score to each main area of care. For scoring, numbers from 3 to 0 are attributed to each item based on the following criteria, 3 = good or standard care corresponding to international standards (no need for improvement or need for marginal improvement); 2 =substandard care but no significant hazard to health or violation of human rights (need for improvement); 1 = inadequate care with significant health hazards (need for substantial improvement); 0 = very poor care with severe hazards to the health of mothers and/or newborns (need for very substantial improvements of the structure, organization, procedures and case management related to specific items or to the whole area).

The Tool is built on and adds up to the experience of implementing Making Pregnancy Safer Programme and Effective Perinatal Care training package obtained by WHO regional office for Europe and also in the implementation of the pediatric hospital care assessment tool in more than 20 countries (WHO, 2009)

The reference standards for the case management assessment of the Tool are the WHO Integrated Managament of Pregnancy and Childhood (IMPAC) manuals of the global Making Pregnancy Safer Programme and the Effective Perinatal Care (EPC) training package developed by the WHO Regional office for Europe and JSI/USAID (WHO 2009)

Results

The 2011 assessment covered facilities providing care to an average of 26% of the total number of deliveries per year (2010) in Albania. The number of deliveries per year per hospital assessed ranged from 1198 to 4222 (2010).

Table 1. Numbers of maternity hospitals showing standard care and average scores in the areas covered by the assessment in 2011

Areas of care	Number of maternity hospit als showing standard care (out of a total of 4) in each main area	Average score (all 4 hospitals)
Hospital support systems	0	1.5
Maternity and neonatal ward	1	2
Normal Labour	0	1.5
Caesarean section	0	1.5
Maternal complications	0	1.5
Routine neonatal care	1	2.25
Sick newborn care	2	2.5
Advanced newborn care	1	3
Emergency care	1	2
Infection control and supportive care	0	1.5
Monitoring and follow-up	0	1.75
Guidelines and auditing	0	1.5
Access to hospital care	0	2

Overall the quality of care was found substandard in all areas of care. Only advanced newborn care (provided only from referral maternity hospital) was classified in compliance with the standard (Table 1). The findings show that there were no areas with an overall average score under 1.5.

Neonatal care (Routine Neonatal Care, Sick Newborn Care and Neonatal Intensive Care) scored better (>2) in comparison with other areas of care. Advanced newborn care was classified as standard (scored 3).

Maternal care including Care for normal labor and Maternal complications scored 1,5.

The neonatal care (Routine Neonatal Care, Sick Newborn Care) scored as a whole better than maternal care (2,4, versus 1,5 respectively).

Overall, the average scores were slightly higher in referral hospital with respect to regional ones (2,23 versus 1,66).

Two hospitals had three areas of care classified as standard, one regional Maternity Hospital and one referral one.

The average scores for each area in all 4 maternity hospitals are shown in Table 2 and the comparison among them in the figure 1. In the Maternity hospital S (regional one) three main areas were classified as standard. In this Maternity hospital was found a slight decrease of Caesarean section rate (from 23,6% in 2010 to 23,2% in 2011) in comparison with other maternities where number of SC increased. In this maternity hospital two out of three areas classified as standard, belong to case management, while in the Maternity Hospital U all three areas classified as standard belong to case management.

Interviews with 14 women (pregnant women or new mothers or mothers of admitted children) in 4 maternity hospital provided information on a number issues including access to hospital, coordination and continuity of care, perceived quality of care and information received at admission, during hospital stay and at discharge, physical comfort, emotional support, involvement of mothers and families in decision taking. The interviews with mothers confirmed the findings of the assessment: the best perceived quality of care from mothers was found in the maternity hospital overall scored higher and in areas of care scored higher and classified as standard (routine neonatal care, sick newborn care and information to mothers and mother and baby centred care, Intensive neonatal care).

Interviews with 26 health professionals provided

interesting insights into issues related to quality of care. The information provided from these interviews confirmed the findings of the assessment regarding critical issues for quality and took into light a number of issues faced by the staff (lack of staff in certain areas (neonatology, doctors and nurses); insufficient training both on the job and through scheduled Continuous Medical Education activities. The interviews confirmed that the participatory peer to peer approach was very well received by health professionals.

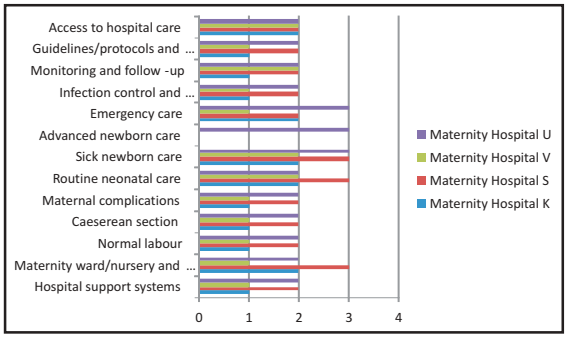
Main infrastructural and procedural issues identified consistently in 4 maternity hospitals assessed were Lack of national guidelines and local protocols for doctors and midwives/nurses for major conditions, Lack of rational policy for antibiotic use for treatment and prophylaxis, Lack of continuity of care and flow of information between primary care and hospital, insufficient communication and information to mothers and their families, existing system for perinatal referral and regionalization not working appropriately. Main case management issues identified were Inadequate provision and utilization of equipment, Inappropriate indications for caesarean section, Lack of national clinical guidelines
and local protocols on indications and procedures, Inappropriate use of technology and interventions, The lack of continuous medical/nursing education, Lack of supervision on neonatal resuscitation and lack of pertinent knowledge and skills; Referral criteria and systems and communication between levels of care not appropriately in place.

The assessment process, led to the identification of key quality gaps and priority actions at maternity hospital level as well as at national level according to four main health system functions: stewardship and governance, resource generation, financing and service delivery (WHO World Health Report 2000), (WHO, European Ministerial Conference on Health Systems, 2008).

Table 2. Average scores for each area of care in 4 maternity hospitals in 2011

	Maternity Hospital K	Maternity Hospital S	Maternity Hospital V	Maternity Hospital U
Hospital support Systems	1	2	1	2
Maternity and neonatal ward	2	3	1	2
Normal labour	1	2	1	2
Caesarean section	1	2	1	2
Maternal complications	1	2	1	2
Routine neonatal Care	2	3	2	2
Case management and sick newborn care	2	3	2	3
Neonatal Intensive Care Units	N/A	N/A	N/A	3
Emergency obstetric Care	2	2	1	3
Infection prevention and supportive care	1	2	1	2
Monitoring and follow up	1	2	2	2
Guidelines and Auditing	1	2	1	2
Access to hospital Care	2	2	2	2

Figure 1. Overall comparison of findings per each area of care among 4 maternity hospitals



Discussion

The assessment carried out in a sample of 4 maternity hospitals in Albania in 2011, overall showed that the quality of care for mothers and newborn babies was substandard in all areas. Only advanced newborn care (provided only from referral maternity hospital) was classified in compliance with the standard.

Findings of the interviews with mothers confirm an overall positive direction of change regarding the environment and friendly care for both mothers and babies (e.g. some basic amenities and services: availability of cold and warm water, toilets and basic supplies such as soap and antiseptics), the communication and information to them and their families indicating a better recognition of such rights from managers and health professionals and higher awareness of their implications for health and wellbeing of both mothers and babies. It was found the abandonment of inappropriate procedures (rooming-in almost was a rule in all maternity wards percentage of episiotomy decreased, enema is not provided routinely, choice of position and presence of the partner during labour and delivery is allowed) but not with the same extent in 4 maternities. In most, but not all centres, a slight decrease was reported in perinatal and neonatal mortality, but quality of data is substandard and some contradictions exists with information that is collected locally.

It was noticed that there was a slight decrease in the number of caesarean sections in only one Maternity Hospital (23,6% to 23,2%), in comparison with the rest where the number of caesarean sections was increased.

In two maternities the poorest performances were observed in key aspects such as the management of normal labor and delivery, Cesarean Section, maternal complications, infection control, availability and use of appropriate guidelines.

Regardless the fact that infrastructure, staffing, provision, distribution and utilization of equipment were often found substandard and sometimes inadequate, widespread and important weaknesses were found in cross-cutting components of care which do not require sophisticated infrastructure or equipment, such as the existence and utilization of updated guidelines and protocols, case reviews and audits (Tamburlini et al, 2011)).

The example of the optimal care in the Neonatal Intensive Care Unit, reflecting both excellent local leadership and a long record of international collaboration (Tamburlini et al, 2011) indicates that ensuring quality of care is possible regardless the financial constraints, deficiencies in health system organization, hospital infrastructure and availability of equipment drugs and supplies.

While many of the identified deficiencies can be effectively addressed at local level (development of local protocols, better communication with and information to mothers, use of existing data and information as a guide for action, including periodic case review and audits, improved infection control, better clinical monitoring) others, such as those regarding perinatal referral system, clinical guidelines, equipment, pre-service and in-service training, decentralization of budgetary responsibilities, introduction of performance based rewarding systems require primarily action at MoH and/or at government level;

The limitations of the methodology are related to the facts, first, that the comparability of the findings among maternity hospitals cannot be completely guaranteed, nevertheless the scoring system is based on clear criteria and the continuity

of the evaluation team was ensured; second, the hospitals were selected by Ministry of Health, with possible bias towards the better performing institutions. However, the main purpose of the assessment was not to guarantee the maximum of accuracy and reproducibility, but rather to promote quality improvement cycles through a peer review assessment and participatory identification of key deficiencies and relevant actions to address them.

Conclusion

Quality of care is a key issue to improve maternal and neonatal outcomes particularly in Albania where the access to birth institutions is nearly universal. The quality assessment of Albanian maternity hospitals was effective in building awareness on quality issues and promoting change at facility level and at the same time at the national level. The Albanian experience proved that the approaches that ensure the participation of professionals and local managers in a comprehensive, action oriented peer assessment of quality of care can be used country-wide as a component of a quality improvement strategy in perinatal health. The assessing process revealed that improvement of clinical management of normal childbirth and complicated cases is just starting and the pace of improvement is slow because it involves changing practices and attitudes of staff, which usually requires a longer time to be implemented.

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FUNCTIONAL HEALTH LITERACY IN PRIMARY HEALTH CARE USERS IN KOSOVO: A VALIDATION STUDY

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Abstract

Aim: In the past few years, health literacy has become an exciting area of research. The aim of the current study was to validate the test of functional health literacy (TOFHLA) among primary health care users in Kosovo, a country which is undergoing a difficult process of transition and considerable reforms after its independence in 2008.

Methods: In October 2012, TOFHLA, a 50-item reading comprehension and 17-item numerical ability test (score: 0-100), was administered to a representative sample of 54 primary health care users in Pristina aged 18+ years (29 males and 25 females; mean age: 58±11 years). Health literacy score was trichotomized into: inadequate literacy (TOFHLA score: 0-59), marginal literacy (score: 60-74), and adequate literacy (score: 75-100). Cronbach's alpha was used to assess internal consistency of the instrument, whereas Fisher's exact test was employed to compare differences in health literacy categories between different socio-demographic and socioeconomic groups of participants.

Results: The Albanian version of TOFHLA showed good internal consistency (Cronbach's alpha = 0.93). Inadequate and marginal health literacy was evident in 33 participants (61%), whereas adequate health literacy in 21 individuals (39%). Older participants had significantly higher levels of inadequate and marginal health literacy compared with their younger counterparts (P=0.028). Conversely, individuals with a university degree had higher levels of adequate health literacy compared with lower educated participants (P=0.003). On the other hand, there was no evidence of statistically significant differences with regard to employment, income or social status groupings.

Conclusion: In this pilot study conducted in Pristina, TOFHLA displayed satisfactory validity and reliability indices suggesting a good potential for future wide-scale use in population-based studies in Kosovo.

Keywords: functional health literacy, health literacy, Kosovo, TOFHLA.

Introduction

In the past few years, health literacy has become an exciting area of research (1-5). Introduced as a term in early 1970s (6), health literacy consists of individuals' capacities, abilities and competencies to meet the complex demands of health and health care in modern societies (1,4). Different definitions and concepts of health literacy have been reported in the international literature in the past decade along with several measurement tools (1-5,7,8). However, current measurement instruments do not capture the whole array of the broad definition of health literacy (1,3).

Instruments for measuring literacy in different health care settings have focused on the ability to read and, in some cases, to use numbers (2,9). One of the most frequently used instruments in this regard is the test of functional health literacy in adults (TOFHLA) [2,10].

Little is known about health competencies and health literacy in transitional countries of the Western Balkans including Kosovo, which emerged as the newest state of Europe after ten years under United Nations' administration following an overwhelming war in the region.

In this context, our aim was to validate TOFHLA among primary health care users in Kosovo, a country which is undergoing a difficult process of transition and considerable reforms after its independence in 2008.

Methods

A cross-sectional study was conducted in an urban primary health care center in Pristina, the capital city of Kosovo, in October 2012. This was a pilot study aiming to validate TOFHLA in the adult population of Kosovo.

A quota sample of 60 participants was targeted for recruitment. Of the 60 consecutive users targeted for inclusion, six participants were excluded from the study due to their age (<18 years), or insufficient visual activity to read the instruments being tested and/or being too ill to participate in the study. Overall, 54 consecutive primary health care users were recruited in this validation study (29 males and 25 females; mean age: 58±11 years).

The original English versions of the TOFHLA were translated into the Albanian language by experts following the standard methods of translation and cross-cultural adaptation of the questionnaires (2,11). The aim of the cross-cultural adaptation was to provide a version of the instrument that was conceptually as close as possible to the original questionnaire, considering nevertheless Kosovo primary health care users' perspective and understanding (2,11).

Of the original version of the TOFHLA, a few not-applicable items were changed. These included questions regarding health care insurance (which are not relevant for Kosovo as there is no healthcare insurance system in place yet). Furthermore, US dollars were converted into Euros.

The long TOFHLA consists of two sections: a 50-item reading comprehension test and a 17-item numerical test (10). The reading comprehension test has three health-related passages, where each passage has every fifth to seventh word deleted; for each blank, the respondent should select one word from a list of four words that best completes the sentence (modified Cloze procedure) [2,10]. The numerical test assesses the quantitative literacy needed in health care settings (i.e. the ability to read and understand numerical information in the form of prescription bottles, appointment slips, or other health-related materials). The 17 items are weighted to yield a numerical score of 50, which gives a total of 100 possible points for the total TOFHLA when added to the 50 Cloze items (2).

Data on demographic factors (age and sex) and socioeconomic characteristics (educational level, employment status, and self-perceived income) were also collected.

Cronbach's alpha was used to calculate the internal consistency of the test (12). Based on prior research, we categorized health literacy score into: inadequate literacy (TOFHLA score: 0-59), marginal literacy (TOFHLA score: 60-74), and

adequate literacy (TOFHLA score: 75-100) [2]. Fisher's exact test was used to compare differences in health literacy categories between different socio-demographic and socioeconomic groups of participants.

Results

The Albanian version of TOFHLA showed good internal consistency (Cronbach's alpha = 0.93). The internal consistency was similar in men and women (0.93 and 0.94, respectively). Conversely, internal consistency was slightly higher among younger individuals (18-50 years) compared with their older counterparts (>50 years), participants with a higher educational attainment (university degree), and those who reported a higher income level (data not shown).

Overall, inadequate and marginal health literacy was evident in 33 participants (61.1%), whereas adequate health literacy in 21 individuals (38.9%) [Figure 1]. The distribution of health literacy scores by demographic and socioeconomic characteristics is

Figure 1. Distribution of health literacy scores in a sample of primary health care users (N=54) in Pristina, Kosovo, in 2012

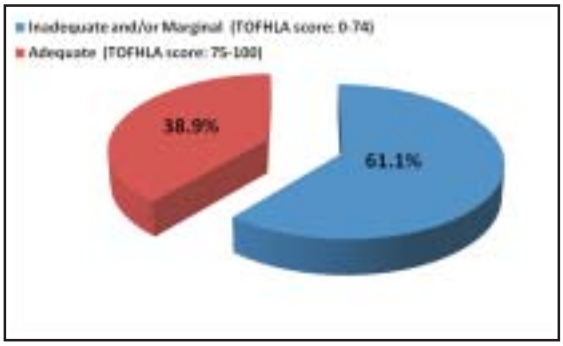

Table 1. Health literacy level by demographic and socioeconomic characteristics in a sample of primary health care users in Pristina, Kosovo, in 2012

Demographic and socioeconomic characteristics	Inadequate (score: 0-59)	Marginal (score: 60-74)	Adequate (score: 75-100)	P-value†
Sex:				
Men	11 (37.9)*	8 (27.6)	10 (34.5)	0.784
Women	9 (36.0)	5 (20.0)	11 (44.0)	
Age group:				
Younger (18-50 years)	6 (22.2)	6 (22.2)	15 (55.6)	0.028
Older (>50 years)	14 (51.9)	7 (25.9)	6 (22.2)	
Educational level:				
Low/middle	15 (53.6)	8 (28.6)	5 (17.8)	0.003
University degree	5 (19.2)	5 (19.2)	16 (61.6)	
Employment status:				
Unemployed	12 (44.5)	7 (25.9)	8 (29.6)	0.412
Other	8 (29.6)	6 (22.2)	13 (48.2)	
Income level:				
Lower	11 (39.3)	8 (28.6)	9 (32.1)	0.612
Higher	9 (34.6)	5 (19.2)	12 (46.2)	
Social status:				
Lower	12 (41.4)	7 (24.1)	10 (34.5)	0.782

* Numbers and row percentages (in parenthesis).

† P-values from Fisher's exact test.

presented in Table 1. Levels of adequate health literacy were somehow higher, but not significantly so, in women compared to men (34.5 vs. 44.0% respectively, P=0.784). On the other hand, older participants had significantly higher levels of inadequate and marginal health literacy compared with their younger counterparts (P=0.028). Individuals with a university degree had higher levels of adequate health literacy compared with lower educated participants (P=0.003). Conversely, there was no evidence of statistically significant differences with regard to employment, income or social status groupings (Table 1).

Discussion

This pilot study conducted in a sample of primary health care users in Pristina indicates a good internal consistency of TOFHLA instrument, which was similar in both men and women. The preliminary results of administration of this tool in a primary health care setting point to a good potential for future wide-scale use in population-based studies in Kosovo.

Besides USA and a few European countries, TOFHLA has been already adapted in Serbian settings where it was shown to have a good internal consistency (Cronbach's alpha = 0.93) [2]. Thus, the internal consistency in our study (overall Cronbach's alpha = 0.94) was similar to the Serbian report.

In our study, overall, inadequate and marginal health literacy was reported by almost two-thirds of participants, which is higher than the Serbian report (2). Yet, this finding should be interpreted with prudence as this was a pilot study only.

Our findings on an inverse relationship of health literacy score with age are consistent with prior studies conducted in the UK and USA (13,14), but also with a recent report from Serbia (2). In these studies, participants with limited health literacy were more likely to be older and had also fewer years of education, similar to the findings in our Kosovo sample. However, the positive association of health literacy with income level reported in previous studies (2,13,14) was not evident in our pilot study in Kosovo. Nonetheless, we should interpret our findings with extreme caution as this was a validation exercise conducted in a limited sample of participants who attended primary health care services in an urban setting in Pristina. Future studies in Kosovo should assess the relationships of health literacy with socio-economic characteristics in large representative samples. In any case, findings of such studies should be limited to primary health care centers unless population-based samples are drawn.

In conclusion, this study provides evidence on the process of cross-cultural adaptation of the TOFHLA instrument in the adult population of transitional Kosovo. After the validation work reported in this article, the TOFHLA instrument will be administered to a large representative sample of primary health care users in Kosovo.

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LEVELS OF PHYSICAL EXERCISE IN A REPRESENTATIVE SAMPLE OF THE ADULT POPULATION IN TIRANA, ALBANIA

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ABSTRACT

Aim: Our aim was to assess the levels of physical exercise in the adult population of Tirana, Albania, a country undergoing particularly rapid transition associated with significant changes in lifestyle including physical activity.

Methods: A cross-sectional study was conducted in Tirana in 2012 including a representative sample of 850 adults aged e"18 years (500 women, mean age: 49.7±18.8 years; 345 men, mean age: 51.3±18.4 years). Participants were asked about their levels of engagement in physical activity (categorized in the analysis into: low, moderate, and high). Data on demographic characteristics (age and sex) and socioeconomic factors (education, employment, income and social status) were also collected.

Results: Overall, 168 (21.8%) of participants reported high levels of physical activity as opposed to 30 (18.0%) of individuals who reported low levels of exercise. The rates of physical activity were similar in men and women. Energy expenditure was inversely associated with age, body mass index and with abdominal obesity.

Conclusion: This study provides useful evidence on the extent and distribution of physical exercise in the adult population of Albania. Levels of physical activity in this representative sample of Albanian adults were low which raises concerns. Public health programs and interventions should raise the awareness of the general population in Albania with regard to promotion of physical activity.

Keywords: energy expenditure, physical activity, physical exercise, physical inactivity.

Introduction

In industrialized countries, the inverse (protective) association of leisure-time exercise with coronary heart disease (CHD) is well-established (1,2). However, survey data on physical exercise in transitional countries of Southeast Europe are scarce, especially for Albania. Thus, accurate data on Albanian population levels of lifestyle/ behavioral factors including physical exercise are scant. Yet, useful evidence on distribution of behavioral characteristics in Albanian adults stems from a cross-sectional study conducted in Tirana in 2001 including 1120 adults aged 25 years and over. According to this study which presumably included a population-representative sample of adults, the lifetime prevalence of smoking was 61% in men and 24% in women (3); the rate of predominantly sedentary leisure-time activities (mainly reading and watching television) was 49% in men and 58% in women (4); the prevalence of obesity [defined as body mass index (BMI) $\geq$30kg/m^2] was 22% in men and 31% in women (5); the overall prevalence of diabetes was 6.3% (6); and the prevalence of hypertension was 37% in men and 27% in women (7). A more recent study conducted in Albania (8), provided evidence for the importance of leisure-time inactivity as a modifiable risk factor for CHD, which is consistent with the literature elsewhere.

The aim of the current study was to assess the levels of physical exercise in a representative sample of adult residents in Tirana city, the Albanian capital.

Methods

A cross-sectional study was conducted in Tirana in April-July 2012 including a representative sample of 845 individuals aged e"18 years (500 women, mean age: 49.7±18.8 years; 345 men, mean age: 51.3±18.4 years).

An interviewer-administered structured questionnaire included information on socioeconomic factors, behavioral factors (including leisure-time exercise) and conventional coronary risk factors. Anthropometric measurements included weight, height and waist and hip circumferences.

Participants were asked to assess their overall levels of physical exercise including physical activity at work, leisure time physical exercise, and housework physical activity. In the analysis, physical activity was categorized into: low, moderate, and high.

Data on demographic characteristics (age and sex) and socioeconomic factors (educational level, employment status, income, and social status) were also collected.

Sixty-one participants provided partial data and, therefore, were excluded from the analysis. Chi-square test was used to compare differences in physical activity levels between different socio-demographic and socioeconomic groups of study participants. A p-value of d"0.05 was regarded as statistically significant. Statistical Package for Social Sciences (SPSS), version 19.0, was used for all the statistical analyses.

Results

Overall, 168 (21.8%) of participants reported high levels of physical activity as opposed to 30 (18.0%) of individuals who reported low levels of exercise. The rates of physical activity were similar in men and women (P=0.281) [Table 1]. As expected, younger individuals (aged 18-35 years) reported the highest levels of physical exercise compared with their older counterparts (P<0.001). Educational attainment was positively and significantly associated with physical activity levels: highly educated participants reported significantly higher rates of physical exercise compared with the low-educated participants (P<0.001). A lower income level and/or a lower social status were both positively related to physical inactivity (P=0.011 and P<0.001, respectively). As predicted, retired individuals reported the lowest rates of physical exercise, followed by the unemployed participants (overall P<0.001) [Table 1].

We assessed elements of construct validity of the exercise questionnaire in the Albanian context in the representative sample of adult men and women included in this survey. As expected, energy expenditure was inversely associated with age

(Pearson r= -0.37 in men, r= -0.49 in women), body mass index (age-adjusted r= -0.63 in men, r= -0.52 in women) and with waist-to-hip ratio reflecting abdominal obesity (r= -0.31 in men and r= -0.39 in women) [all Pd"0.001]. There was no significant association of physical exercise with smoking in either sex (not shown). In contrast with Western societies, there was an inverse association with social position (r= -0.19, P=0.002) and educational level (r= -0.16, P=0.013) in men only (data not shown in Table 1).

Table 1. Distribution of physical activity levels in a population-representative sample of Tirana residents in 2012

	Levels of physical exercise			
	High	**Moderate**	**Low**	**P-value**
Sex:				
Men	73 (23.2)*	175 (55.6)	67 (21.3)	0.281
Women	100 (21.3)	246 (52.5)	123 (26.2)	
Age-group:				
18-35 years	76 (37.3)	106 (52.0)	22 (10.8)	<0.001
36-50 years	35 (26.3)	79 (59.4)	19 (14.3)	
>50 years	60 (14.3)	221 (52.6)	139 (33.1)	
Educational level:				
Low	12 (9.1)	65 (49.2)	55 (41.7)	<0.001
Middle	64 (21.6)	161 (54.4)	71 (24.0)	
High	89 (27.4)	180 (55.4)	56 (17.2)	
Income level:				
Low	15 (15.3)	47 (48.0)	36 (36.7)	0.011
Middle	109 (21.5)	274 (54.2)	123 (24.3)	
High	44 (26.3)	93 (55.7)	30 (18.0)	
Social status:				
Low	11 (12.6)	41 (47.1)	35 (40.2)	<0.001
Middle	133 (21.5)	346 (56.0)	139 (22.5)	
High	21 (35.6)	25 (42.4)	13 (22.0)	
Employment status:				
Employed	97 (30.9)	176 (56.1)	41 (13.1)	<0.001
Unemployed	30 (20.4)	80 (54.4)	37 (25.2)	
Students	21 (36.2)	34 (58.6)	3 (5.2)	
Retired	24 (9.7)	122 (49.4)	101 (40.9)	

* Number of individuals and row percentages (in parenthesis). Discrepancies in totals are due to missing values.

Discussion

This study provides useful evidence on the extent and distribution of physical exercise in the adult population of Albania.

Energy expenditure in leisure-time physical exercise is a substantial protective factor for cardiovascular disease and other health conditions, a finding which has been consistently reported in different epidemiologic studies conducted all over the world (1,2).

The prevalence of physical exercise during the communist regime in Albania, where until 1990 private cars were banned and agriculture was not mechanized, is traditionally supposed to have been high (4,8). Subsequently, car ownership increased rapidly and pedestrian areas became more limited in Tirana, reflecting a rapid transition towards a mechanized society, in which leisure-time exercise becomes a useful indicator of the overall rate of physical activity among adults (4,8). A prior study including a population-based sample of men and women aged 35-74 years reported that 19% of male and 26% of female participants had extremely low energy expenditure levels of ≤45

Kcal/day (8). Conversely, an earlier study conducted in 2001 reported predominantly sedentary leisure-time activities (mainly reading and watching TV) among 50% of men and 58% of women in Tirana (4). It has been argued that the low extent of leisure-time exercise among Albanian adults is a public health concern impacting also on future trends of obesity, impaired glucose tolerance, diabetes, hypertension and cardiovascular disease (8).

Besides physical exercise, studies have linked television (TV) viewing with increased rates of obesity (9-11), a finding which has been replicated in the Albanian population too (8). Furthermore, a prior study conducted in Tirana reported an association of TV viewing with excess cardiovascular risk in women, which was independent of several conventional coronary risk factors including lifestyle characteristics (8).

A potential limitation of our study lies in the possibility of information bias. Differential reporting of leisure-time exercise or other lifestyle/behavioural characteristics is a possibility that we cannot dismiss. However, there seems to be no obvious reason why different socio-demographic and socioeconomic subgroups of participants should under-report or over-report on the levels of physical exercise (8).

In summary, our study provides useful information on the levels of physical activity in the adult population of Albania, a transitional society in the Western Balkans. Particularly the leisure-time activity levels were quite low in this representative sample of men and women in Tirana.

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TUBERCULOSIS MANAGEMENT AMONG DIAGNOSED PATIENTS IN KOSOVO

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Abstract

Aim: The aim of this study was to describe the health seeking behavior and management of tuberculosis among diagnosed patients in transitional Kosovo, a country which is undergoing considerable health care reforms in the past few years.
Methods: 113 tuberculosis patients diagnosed in the period 2010-2011 were included in this study (54 men, mean age: 44.8±19.9 years; 59 women, mean age: 40.0±20.2 years). A structured questionnaire was administered to all participants including information on disease characteristics, treatment, and health-seeking behavior. Furthermore, demographic and socioeconomic data were collected.
Results: Overall, 85.6% of the tuberculosis patients were ethnic Albanians; 36.3% were in the younger age-group (d"30 years); 58.4% were from rural areas; and 54.9% reported an insufficient income level. Overall, 104 (92%) were new tuberculosis cases. Extra-pulmonary cases comprised 19.5% of the patients. Only 31% of the patients reported that they sought medical care within 10 days of appearance of the symptoms. More than half of the patients sought organically medical care in the family health centers. Conversely, the tuberculosis diagnosis was confirmed in the hospital setting in 65.5% of the cases. Almost 55% of the patients reported out-of-the-pocket payment for tuberculosis treatment, notwithstanding an extremely high rate of satisfaction with the health personnel.
Conclusion: Our findings point to poor health-seeking behaviors among Kosovo patients with tuberculosis. Health professionals and policymakers in Kosovo should be aware of the treatment delays including poor compliance among tuberculosis patients.

Keywords: Kosovo, extra-pulmonary tuberculosis, pulmonary tuberculosis, treatment of tuberculosis.

Introduction

The strategy recommended by the World Health Organization on tuberculosis control (referred to as "DOTS strategy") has been shown to be effective in reducing tuberculosis incidence in several countries including post-war Kosovo (1). Thus, in 1999, as part of the re-organization of health services, a DOTS-based National Tuberculosis Program was established and operationalized through a collaboration of several international partners in Kosovo (1). These efforts went along with other health care reforms envisaged in Kosovo in early 2000s (2,3).

Yet, the data available on the tuberculosis notification rate in Kosovo indicate that the level remains high compared to neighboring countries such as Albania, Macedonia, Serbia and Montenegro and especially compared to Slovenia, but lower than Bosnia Herzegovina, Romania and former Russian Federation Countries (4). Thus, of the 1,102 cases reported in 2005, 232 were new cases, representing a further decrease in new cases since 2001 (4).

In 2005, the number of new cases reported was half of the figure reported for 2001, while the number of recurrent cases decreased to more than half of that reported in 2001 (from 105 cases in 2001, to 40 in 2005) [4,5]. According to the Tuberculosis Global Fund Project, the proportion of bacteriologically-confirmed cases has been decreasing by approximately 10% since 2001.

However, little is known about health seeking behavior, diagnosis and management of tuberculosis among patients in Kosovo. In this context, the aim of this study was to describe the health seeking behavior and management of tuberculosis among diagnosed patients in transitional Kosovo, a country which is undergoing considerable health care reforms in the past few years.

Methods

This study included 113 tuberculosis patients diagnosed in the period 2010-2011 (54 men, mean age: 44.8±19.9 years; 59 women, mean age: 40.0±20.2 years).

A structured questionnaire was administered to all participants including information on disease characteristics, type of tuberculosis (pulmonary vs. extra-pulmonary), treatment, health-seeking behavior (number of days seeking medical care after appearance of the symptoms), and satisfaction with health care personnel. Furthermore, socio-demographic (age, sex, marital status, and origin [urban vs. rural areas]) and socioeconomic data (employment status and income level) were collected.

General linear model was used to compare the mean number of days for seeking medical care among different socio-demographic and socio-economic groups of tuberculosis patients. Mean values, their respective 95% confidence intervals (95%CIs) and p-values were calculated. In all cases, a p-value of d"0.05 was regarded as statistically significant. All statistical analyses were conducted in SPSS (Statistical Package for Social Sciences), version 19.0.

Results

Overall, 85.6% of the tuberculosis patients were ethnic Albanians; 36.3% were in the younger age-group (d"30 years); 58.4% were from rural areas; and 54.9% reported an insufficient income level (Table 1).

Overall, 104 (92%) were new tuberculosis cases (Table 2). Extra-pulmonary cases comprised 19.5% of the patients. Only 31% of the patients reported that they sought medical care within 10 days of appearance of the symptoms. More than half of the patients sought organically medical care in the family health centers. Conversely, the tuberculosis diagnosis was confirmed in the hospital setting in 65.5% of the cases. Almost 55% of the patients reported out-of-the-pocket payment for tuberculosis treatment, notwithstanding an extremely high rate of satisfaction with the health personnel (97.3%) [Table 2].

The mean number of days for seeking medical care after appearance of the symptoms was slightly but not significantly higher in women compared to men (28.6 days vs. 26.4 days

respectively, P=0.763) [Table 3]. Conversely, there were no differences among younger vs. the older age-groups. Rural residents delayed care seeking more than their urban counterparts, notwithstanding the lack of statistical significance. Similar finding was evident for not-married participants compared with those who were married. Ethnic Albanians had a longer duration of seeking medical care compared with the other ethnic groups, but this finding was not statistically significant too (29.2 days vs. 17.3 days, P=0.255). Lower income individuals reported also a longer duration of seeking medical care compared with higher income participants, but again, this finding was not statistically significant (Table 3).

Discussion

This is one of the first reports describing the management of tuberculosis among diagnosed patients in Kosovo, a country which is undergoing tremendous political, socioeconomic and health care reforms in the past few years.

In this study, female gender, Albanian ethnicity, urban residence and a lower income level were all related to a longer duration of seeking medical care, albeit the lack of statistical significance.

It has been argued that minority communities in Kosovo are particularly vulnerable to tuberculosis due to their isolation and corresponding lack of access to health care (3,6). From this point of view, it has been conventionally believed that continued ethnic tensions in the region, combined with other political pressures, have provided serious challenges to the establishment of a tuberculosis program for minorities that is integrated into the national tuberculosis program in Kosovo (6). However, our findings confined to diagnosed tuberculosis patients in Kosovo point to a higher rate of prompt medical care seeking among ethnic groups other than the Albanians. This finding needs definitely further investigation in more robust studies.

The Ministry of Health in Kosovo, through the Tuberculosis Global Fund Project, has established a sustainable mechanism of tuberculosis reporting to the annual WHO Global Report on tuberculosis (4). Overall in Kosovo and in minority areas TB case notification and incidence rates are said to have gradually decreased in recent years (4).

Yet, it is argued that much more needs to be done in order to improve survey quality, including the conducting of a tuberculosis multi-drug resistance survey, strengthening capacities in data management and analyses and incorporating tuberculosis program activities in planning and resource allocation within government resources (1,4). To date, the Global Fund remains the leading agency supporting the Ministry if Health in implementation of the Kosovo Health Strategy, reducing communicable diseases as one of its five priorities, while focusing on tuberculosis (1,4,5).

In conclusion, this study provides evidence on seeking behaviors, diagnosis and management of tuberculosis among patients in transitional Kosovo. Our findings point to poor health-seeking behaviors among Kosovo patients with tuberculosis. Health professionals and policymakers in Kosovo should be aware of the treatment delays including poor compliance among tuberculosis patients.

Table 1. Distribution of demographic and socioeconomic characteristics of tuberculosis patients in Kosovo

Demographic and socioeconomic characteristics	Number	Column percentage
Sex:		
Men	54	47.8
Women	59	52.2
Age-group:		
≤30 years	41	36.3
31-50 years	33	29.2
>50 years	39	34.5
Origin:		
Rural	66	58.4
Urban	47	41.6
Marital status:		
Married	62	54.9
Not married	51	45.1
Ethnicity:		
Albanian	97	85.8
Other	16	14.2
Employment status:		
Employed	21	18.6
Self-employed	16	14.2
Student	19	16.8
Pension	19	16.8
Unemployed	38	33.6
Income level:		
Regular/sufficient income	51	45.1
Irregular/insufficient income	62	54.9

Table 2. Disease characteristics and health-seeking behavior of tuberculosis patients in Kosovo

Variable	Number	Column percentage
New TB cases:		
Already diagnosed TB cases	9	8.0
New TB cases	104	92.0
TB type:		
Pulmonary (SS+)	63	55.8
Pulmonary (SS-)	28	24.8
Extra-pulmonary	22	19.5
How many days after appearance of the symptoms have you sought medical care?		
≤10 days	35	31.0
11-30 days	53	46.9
>30 days	25	22.1
Institution of the first health visit:		
Family medicine center	59	55.2
Hospital	12	10.6
DAT	9	8.0
Private clinic/ambulance	33	29.2
Institution which set TB diagnosis:		
Hospital	74	65.5
DAT	37	32.7
Private clinic/ambulance	2	1.8
Have you paid out of the pocket for services received in public institutions?		
Yes	62	54.9
No	51	45.1
Have you been treated with respect by the medical personnel?		
Yes	110	97.3
No	3	2.7

Table 3. Number of days for seeking medical care after appearance of the symptoms by socioeconomic characteristics among tuberculosis patients in Kosovo

Demographic and socioeconomic characteristics	Mean (95%CI)*	P-value*
Sex:		
Men	26.4 (15.9-36.8)	0.763
Women	28.6 (18.6-38.6)	
Age-group:		
≤30 years	27.5 (15.5-39.6)	0.986
31-50 years	27.4 (13.9-40.8)	
>50 years	27.7 (15.3-40.0)	
Origin:		
Rural	29.8 (20.4-39.3)	0.453
Urban	24.3 (13.1-35.4)	
Marital status:		
Married	25.5 (15.8-35.2)	0.538
Not married	30.0 (19.3-40.7)	
Ethnicity:		
Albanian	29.2 (21.5-37.0)	0.255
Other	17.3 (1.8-36.4)	
Employment status:		
Employed	25.3 (8.6-42.0)	0.414
Self-employed	45.0 (25.9-64.1)	
Student	21.6 (4.1-39.2)	
Pension	25.0 (7.5-42.5)	
Unemployed	25.6 (13.2-38.0)	
Income level:		
Regular/sufficient income	24.8 (14.1-35.6)	0.505
Irregular/insufficient income	29.7 (20.0-39.5)	

** Mean values, 95% confidence intervals (95%CIs) and p-values from the general linear model.*

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LNG-IUD, A GOOD TOOL IN TREATMENT OF ABNORMAL UTERINE BLEEDING, ESPECIALLY IN CASES COMPLICATED WITH SUBMUCOSAL LEIOMYOMA

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Abstract

Aim: To make evident the advantages of LNG-IUD use in the treatment of abnormal uterine bleeding, especially in cases complicated with submucosal leiomyoma.
Methodology: The study was conducted at the University Hospital of Obstetrics-Gynecology "Koco Gliozheni", in Tirana. It included 78 patients, who had one of the following pathologies: menorrhagie, dysfunctional uterine bleeding, uterine leiomyoma (solely or multiplex), women with considerable menstrual loss who needed anemia treatment; peri-menopausal women who needed treatment to avoid the irregular menstrual period or needed to take estrogen additional therapy; or needed progestatives as protection from estrogenotherapy.
Results: After the LNG-IUD placement, the menstrual loss is reduced faster and greater in cases which are simply dysfunctional uterine bleeding, than with uterine myoma. Only 4 patients needed surgical intervention till now.
Conclusion: Based on our results, we recommend D & C before LNG – IUD insertion in order to exclude any malignancies increase effectiveness regarding the reducing of the menstrual blood loss after IUD insertion and spontaneous IUD expulsion.

Background

Levonorgestrel intrauterine releasing device (LNG – IUD) is an ideal choice not only as a long term contraception method but also as a powerful therapeutic alternative in: reducing menstrual bloody loss; reduction of chronic pelvic pain intensity; leiomyoma treatment; postmenopausal period combined therapy (associated of estrogen therapy with IUD).Before entry of LNG - IUD in Albania the majority of cases with leiomyoma undergone the surgical intervention from myoma extirpation only till hysterectomy.(1) Because of its powerful local progestative effect in endometrial layer, LNG - IUD prevents endometrial hyperplasia development (which constitutes the first step of endometrial cancer development) during the use of peri-menopausal estrogen therapy.LNG - IUD can induce endometrial releasing of growth factor 1 binding protein , inhibiting this way its growth effect (2). This protein regulates the insulin like growth factor activity, which is supposed to intermediate the endometrial mitotic effect of estrogen. This can explain the protective effect of LNG - IUD in uteri myoma (3). Another supportive fact about what we clarify above is that the thin endometrial layer is resistant to estrogen and does not produce sufficient amounts of growth factor which in turn will stimulate myoma growth. LNG - IUD does not lead to reduction of PgE2 levels but increases the endometrial the resistance to PgE2. Endometrial changes and the persistent presence of progesterone in patients with IUD - LNG, avoid bleeding from the cyclic hormonal withdrawal that accompanies the hormonal replaced therapy. LNG - IUD's locally and gradually hormonal releasing leads to the reduction of both endometrial thickness and its vascularisation within the first 6 months of insertion. LNG - IUD can lead to oligomenorrha despite that the ovarian function can be fully preserved.. Because of the menstrual bloody loss reduction , LNG - IUD can increase the hemoglobin in both normal and menorrhagic women groups.(4). Patients who use LNG - IUD represent a significant decrease of the probability to suffer from the pelvic inflammatory disease (PID),and this is probably due to the cervical mucus thickening which prevents the ascendant infection, but even the endometrial suppression and menorrhagie reduction create good premises to reduce the incidence of PID.(5).

Methodology.

This is a prospective study. The method used to select the sample which is the non probabilitarien sample-quote. Persons included in the study have a previously known probability to be included in the sample such as: leiomyoma, anemia, menstrual irregularity like menorrhagia and metrorrhagia, Size of population studied till now is 78 women. The study started from January 2007 – January 2012. All patients of 35 years old and older, with: dysfunctional uterine bleeding, with leiomyoma complicated with bleeding (menorrhagia, metrorrhagia and menometrorrhagia) undergone diagnostic and therapeutic D & C. The following parameters were objectively measured: a) menstrual blood loss self-reported; b) hemogramma; c) uterine size and, d) number and size of uterine myoma.

*Participants:*We included in this study all those women who wanted a therapeutic alternative for one of the following pathologies: menorrhagie, dysfunctional uterine bleeding, uterine leiomyoma (solely or multiplex), women with considerable menstrual loss who needed anemia treatment; peri-menopausal women who needed treatment to avoid the irregular menstrual period or needed to take estrogen additional therapy; or needed progestatives as protection from estrogen therapy. Women who wanted a therapeutic alternative for: dysfunctional uterine bleeding; solely uterine myoma (diameter <4 cm); multiple uterine myoma (d"4 myoma, each one of them with diameter d"3cm). who accepted to undergo diagnostic and therapeutic D & C. Signed the consensus card and accepted to use LNG IUD

patients agreed to be controlled in intervals of 3, 6, 12, 24, 36 months after insertion of the LNG - IUD and accepted to undertake blood tests and ultrasound examination order to evaluate hematological changes; menstrual loss; uterine volume; number and size of uterine myomas. All patients of 35 years old and more,

Results

78 women included in the study, with mean age 46 years old, were diagnosed as follows: 22 cases have multiple myoma (number of myoma d"4 and the size of each one of them d"4 cm); 24 cases have solely myoma with diameter d" 4 cm; 32 cases have abnormal uterine bleeding. Two cases only have had Endometriosis and menorrhagy, one of them is diagnosed with laparoscopy. 15 cases lost to follow up. Almost all the patients are undergone D & C before IUD insertion except 9C. We evaluated these patients 3; 6; 12; 24; 36 months after insertion of IUD in related to hemogramma; menstrual blood loss (self-reported). Due to objective and subjective causes we did not correctly evaluated uterine & myoma size.

Table 1. MBL (days) self-reported

Number of cases	Before insertion LNG - IUD	After insertion LNG - IUD (months) 3; 6; 12	Amenorrhea (months) 24 ; 36.
A + B (18 +22)*	10	7 ; 4 ; 3	0 ; 0
C 23*	12	5 ; 3 ; 0	0 ; 0

* A (18 cases with multiple myoma); B (22 cases with solely myoma); C (27 cases with menorrhagi DUB)

As it can be seen from Table 1, after the LNG-IUD placement, the menstrual loss is reduced faster and greater in cases which are simply dysfunctional uterine bleeding, than with uterine myoma. LNG-IUS can cause oligomenorrhea, despite that the ovarian function can be fully preserved. Only in cases with DUB, amenorrhea was present 1 year after the LNG-IUD placement (23 cases), while in cases with uterine myoma we have not any patient with amenorrhea 1 year after LNG-IUD placement, and this probably because in patients with uterine myoma, endometrial hyperplasia is a consequence of the uterine myoma and that's why it cannot be completely dominated by LNG-IUD placement LNG –IUD acts locally and gradually, leading within the first 6 months of insertion to the reduction of endometrial thickness and its degree of vascularisation. LNG - IUD can lead to oligomenorrhea, despite that the ovarian function can be fully preserved.

Table 2. Hb level evaluation in g/dL

Number of cases	Before insertion LNG-IUS	3 months after insertion	(6);(12) months after insertion	The years after insertion(2) (3)
A (18)	8,5 - 9,5	8,9	10,2 ; 11,0	11,6 ; 12,1
B (22)	9,2 - 10,3	10,2	10,7 ; 11,6	12,0 ; 12,6
C (23)	8,2 - 9,2	9,8	10,9 ; 11,5	12,4 ; 12,7

Regarding the hemoglobin levels, we don't see significant differences between the three studied groups one; two; three years; after LNG - IUD's insertion. The hemoglobin levels varies respectively from (11.00 g / dl to 11.6 g / dl (1 year); 11.6–12.4 (2 years); 12.1–12.7 (3 years after insertion). The faster and most significant change was found in patients with dysfunctional uterine bleeding, which suggest that demolition of uterine structures (uterine myoma) can affect the menstrual losses much more than the simple.

Changes in the dimensions and volume of the uterus: For objective and subjective reasons we have not been able to evaluate exactly uterine size and volume, but we have not seen any adverse side effect connected with LNG-IUD, and what is more important we have noted slowing growth of solely myomas and in 11 cases a reduction of their diameter by about 0.8 - 1 cm. Regarding to multiplex myomas, no case has undergone surgery and in 4 cases we have noted significant reduction in the uterine volume. Only 4 patients needed surgical intervention till now. Their hematologic tests seem to be improved significantly. All of the above cases are treated for anemia, but this does not have any significance, because when these women presented at the hospital, they were already treated for 9 to 12 months. Regarding the mode of action of LNG-IUS data which explain some aspects: 1) LNG-IUD does not cause hypoestrogenemia. 2) It reduces the number of estro-progestative receptors through suppressing their synthesis and expression) Inhibiting of the synthesis and action of macrofag inflamator mediators in the peritoneal fluid. Role of LNG –IUD in the treatment of DUB is surely important, studies regarding the reduction of uterine myoma volume and leiomyomatous uterus are encouraging and constitute today an excellent alternative to the treatment of them, avoiding surgical intervention. Regarding LNG-IUD role in Endometriosis and chronic pain treatment, studies need to expand and extend in time.

Conclusion

This study infer that despite hypothetic data about the mechanism of action of LNG –IUD in pathologic conditions like: DUB, uterine myoma and Endometriosis, LNG - IUD's role seems to be important. Based on our results, we recommend D & C before LNG – IUD insertion in order to exclude any malignancies increase effectiveness regarding the reducing of the menstrual blood loss after IUD insertion and spontaneous IUD expulsion.

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EXPERIENCES OF COUPLES TREATED FOR INFERTILITY: A PHENOMENOLOGICAL APPROACH

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Abstract

Aim: The purpose of this study was to describe the experience of couples that were diagnosed with infertility and underwent infertility treatments, at 2 infertility Clinics in Tirana.
Methods: For the purpose of the study were used nine in depth interviews with seven women and two men. The interviews were tape recorded and transcribed within 24 hours after the interview. The analysis was conducted using phenomenological reduction, meaning condensations, meaning categorization and re-contextualization.
Results: The findings of the study were consistent with the findings of other qualitative studies that have been conducted in the past. All the women participants discussed having feelings of inadequacy, disappointment, and frustration. The manner in which women and men responded to the infertility experience deeply deferred.
Conclusions: Our conclusion was that infertility represents a major life crisis. The inability to conceive biologically a child is by far one of the most tragic events for a woman to endure. In doing so, it was evident that grieving for this loss is a very natural part of the journey.

Keywords: Infertility, infertility experience, phenomenological study

Introduction

Health care practitioners consider a couple to be infertile "if the woman has not conceived after 12 months of unprotected intercourse or if either partner has a known condition that makes conception unlikely" (1). The journey to parenthood for most people is relatively simple, but health care practitioners estimate that 10% of the global reproductive-age population is unable to get pregnant or carry a pregnancy to term (2,-4).

Infertility is considered a crisis situation because it must be dealt with on a personal as well as a marital relationship perspective (5). The crisis virtually forces couples to address a myriad of feelings and emotions that range from the loss of their inability to give birth to a biological child to relinquishing control over something that seems so natural (6). The couples who choose to pursue parenthood by using artificial techniques are highly motivated to become parents. However, their quest for parenthood is not without its fair share of hope and despair. One of the major issues couples must confront almost immediately upon initiation of the infertility process is that of stress placed on the marriage (7). The stress imposed by infertility treatment stems from of a number of factors. Another component of the stress is the amount of guilt felt by the partner who has been diagnosed as infertile (7). At times this type of situation may be beneficial as it can serve the purpose of strengthening the bond between the partners, but many times it leaves each partner with the inability to meet each other's needs (7). When couples are able to show empathy and are sensitive to the other's feelings, the marital bond is strengthened (6). However, when couples are not equipped with the ability to openly share their thoughts and feelings, the couples may become isolated from one another and drift apart (6).

The research conducted in the area of infertility with regards to stress indicated that, for the most part, women experience stress in a more intense manner as compared to men. In a study that investigated the gender's role in responses to infertility, the researchers found that the wives of the infertile couple perceived their fertility problem as significantly more stressful than their husbands (7). In addition, the wives expressed feelings of having experienced more disruption and stress in all aspects of their lives, including personal, social and sex lives (7).

According to the research conducted in examining gender's responses to the infertility, the wife is typically the one who acknowledges the possibility of infertility and most often the one who seeks diagnosis and treatment (8). Research also indicated that the husband is most often the one who is more willing to stop treatment, but the decision to do so is usually determined by the wife (8). As an infertile couple's financial, emotional, and physical investment in infertility treatment increase, researchers indicated that so does their discontentment (9).

Infertile couples may experience loneliness and isolation as they grieve through their sorrow. Unfortunately, couples whose communication patterns are poor are often more likely to have greater feelings of discontentment, which can be exasperated by physical, emotional, and financial strain caused by the infertility treatment process (9). Women reported that at times they suffered painful and/or side effects from various aspects of the treatments, especially hormone therapy (10). The emotional impact of the treatments ensued when they did not conceive. After several failed attempts more likely the women were likely to have feelings of worthlessness and a loss of control (10).

Other means by which they increased their space between themselves and their infertility included avoiding situations that reminded them of their inability to conceive, such as baby showers and family reunions and gatherings. Still others chose not to discuss their infertility with anyone other than their husbands.

Giving in to feelings such as crying was another coping mechanism found by the researchers; crying provided some relief from the situation (9). Others reported engaging in indulgent of each couple.

Detailed field notes were maintained to allow the

behaviors such as shopping or refraining from chores such as household cleaning, which allowed the women to find ways to take care of themselves in ways that gave them some special attention (9). Finally research in the field, indicated that it helped to strengthen their bond with their husbands (9).

Recent research regarding the impact of the infertility diagnosis and treatments has on an individual's life indicated that it can significantly impact a couple's marriage and become a greater contributor of stress than any other life problem (11). Unfortunately, as treatments progress and become more involved, the process launches couples on to a cycle of hope and disappointment (12). According to researchers, women undergoing infertility treatments re left with feeling empty, defective, incomplete, undesirable and unworthy (13). In turn, some couples find it necessary to endure the pain of infertility through social isolation in order to protect themselves (9). These feelings are often exacerbated by the fact that infertility treatment requires adherence to rigid schedules of doctor's appointments and tests and procedures of various kinds so that nature can be perfectly simulated.

Methodology

This study was a qualitative research design, namely related as phenomenology. The purpose of this phenomenological research endeavor was to describe the impact infertility treatment has on the relationship of couples. Also, this study described the cultural beliefs, attitudes and perceptions regarding infertility treatments as it relates to marital relationships and procreation. For the aim of the study were used nine in depth interviews. The nine persons who participated in the study were diagnosed with infertility (them or their partners), and also have undergone infertility treatments to achieve pregnancy.

The selection of research participants was purposeful because the primary purpose of this phenomenological study is to accurately describe the lived experience of the infertility event (14).

All participants were interviewed and data was taped-recorded and transcribed so that themes may be identified. The researcher gained access to 2 Infertility clinics, in Tirana, by meeting with the physician of the clinic to discuss the goal of the research endeavor. Due to the sensitivity of the topic under investigation, it was necessary to have someone who is very familiar with the couples and their infertility history to serve as a liaison between the researcher and the couples this role was undertaken by the gynecologist of the given center.

During the research process, the researcher utilized a strategy referred to as meaning condensations, whereby long passages were converted to shorten statements while being mindful of retaining the truth of the original words of the study participant, followed by a narrative description of the phenomenon (14). The second strategy refers to meaning categorization which involves coding long passages into categories (14).

Reliability and credibility is often difficult to achieve due to the nature of the research design. The purpose of qualitative research is not to replicate because replication is virtually impossible given the research deals with human behavior. There were no physical risks or social risks incurred by the participants of this study. The psychological risks associated with this study involved the emotional feelings that either party may have regarding the infertility experience. To minimize this risk, the researcher reminded the participant that they have the right to withdraw from the study without any penalties.

Confidentiality of the subjects was maintained throughout the study by identifying them by using fictitious names so that only the researcher was able to identify the participants. Prior to the initiation of each interview, participants received a consent form. At this point, the researcher advised the participants of their right to withdraw from the study at any time during the interview process. All interviews were scheduled by the researcher and occurred in a private quiet area at the infertility clinic. Data were collected by tape-recording one-on-one interviews with both parties

researcher to document the behaviors and the mood of the participants during the course of the interviews. These observations enhanced the data collection process as well as enabled the researcher to identify themes and categories across the interviews. All observations were documented as field notes, later transcribed using Microsoft Word software.

Results

The women participants all agreed that the experience of infertility treatment was very stressful physically and emotionally demanding, financially overwhelming, and involved a strong commitment to searching for hope even when disappointment and discouragement was more the rule rather than the exception. The stressful feelings were often perpetuated by the constant reminders that are innocently present in our everyday surroundings.

For some, the chosen method of self-preservation was to stop attending baby showers and shying away from people who had young children, but for others protecting one's self from additional insult injury meant isolation. For all the women involved, each engaged in some level of isolation during their infertility journey. For example, one participant spoke of being she procrastinated from going to the hospital to visit the baby that her sister had given birth to. And, for another, isolation meant remaining very secretive with regard to her infertility tests and procedures. Of course, the longer the journey of the infertility lasted, the greater the stress as it became increasingly more difficult to maintain privacy and secretive. For another woman who was a very devout Muslim, her level of concern and stress increased when she confronted the possibility of having multiple children at one time. She doesn't believe in abortion, but didn't think she could handle more than one infant at a time. Aside from the religious beliefs and the surroundings that often reminded the women of their desire to have children, the women spoke of the physical and emotional demands that infertility imposed. The women spoke of the schedules that had to be kept at all costs, because one step out of the boundary could mean not only a lost attempt, but a loss of many money, as well as some of their spirit. Two of the women spoke of the inconvenience infertility regimens brought to their lives, especially when it meant missing work and getting unemployed. The other women spoke of having to constantly be aware of their plans and working out the logistics of taking their injections wherever they may be when the clock struck eight in the evening. From an emotional perspective, one woman spoke of feeling as though she had to "bear the burden" at all times, because she was the one who had to remember the doctor's appointments, she was the one who had to keep track of the medication regimens, she was the one who had to endure the side effects of the medications and procedures and she was the one who was constantly reminded that she was the one who was caught in a body that could not deliver. This very reminder was probably the very one that seemed to erode each woman's self-esteem and ego as many described feeling "not good enough to have a child," like a failure, or inadequate. These feelings, in turn, forced all the women, for a period of time, to re- define themselves and re-discover a new identity. Another woman stated that she and her husband had to draw the line somewhere so that they wouldn't spend years trying to accomplish something that may not be God's will. For others, the money simply came to an end. For the most part, all the couples paid for their infertility using their savings and mostly loans from their family members. For one of the couples, the decision to talk to the family for the problem of infertility and its treatments, derived from the need of money. The lack of which, added a burden to the infertility itself. For three couples, the decision to end treatment was made after many years of attempts and depleted others it was a means of preservation as they recognized their emotions were very fragile, their loss of privacy was great, and the emotional and physical

resources. For another couple, the decision to end treatment was a combination of their financial situation and their tirelessness feelings. Each couple also seemed to be at a point of accepting their fate and ready to travel another path to parenthood, for most this meant a childless life or adoption, mainly from a relative (sister or brother of any of the partners).

Throughout each couple's experience, they all spoke of the hope they felt when they first sought treatment because they believed that this would be the right choice, the right path, and just what it would take to conceive. However, with each passing failed cycle, the hope that was felt so strong-heartedly was diminished little by little. It seems that the greater the investment, both emotional and physical, the greater the devastation, disappointment, and discouragement that transcended. Additionally, it seems that the harder they tried to control the chain of events that occurred along the way, the more stress they felt. In turn, many of the women found other avenues to alleviate themselves of the pain they felt. For all, this meant putting their energies towards work, exercise, or prayer.

However, the manner in which women and men responded to the questions was very different. In fact, one would say that their responses to the guiding questions were on opposite ends of the spectrum. The first male participant answered each question with very little detail and emotion. Although he answered each question with no hesitation, each answer was clear and to the point. One point of interest with this participant was his insistence on making sure that the researcher understood that his wife's infertility issue was finally diagnosed as a "mechanical issue" and nothing more. He also made no attempt to speculate as to what path they would have chosen had his wife had not conceived. The other male participant, on the other hand, was very emotional as he described his and his wife's experience. He recalled the events of their experience vividly with much description. He willingly shared his feelings and emotions about the many miscarriages his wife endured. Throughout the entire interview he made it clear that God, enabled him and wife to remain strong during that trying time. Unlike the first male participant, the second participant shared his feelings with his mother and very close friends.

Discussion

The study was a qualitative research endeavor to describe the lived experience of couples who had pursued infertility treatment. The genre was phenomenology, and as with most studies it all began with an idea, a personal interest, and a strong desire to uncover something of significance that had yet to be revealed. Thus the study was conceptualized and began with the rationale for conducting a study of this nature and a review of literature, supporting the need for more investigation. The aim of the study was to acknowledge the pain and stress associated with infertility, but also to create an awareness of the number of couples who are faced with infertility and its treatment procedures in the course of their life.

Infertility has long been identified by researchers in this area a major crisis and one that is deserving of more attention and research to fully understand the impact that this disease may have on a couple's relationships, emotional well-being, and their financial stability.

Findings from the data analysis revealed that the women experience a myriad of emotions when pursuing infertility treatment. All of the women discussed having feelings of disappointment, frustration, and stress. Even though there were some differences in the manner in which each woman coped with the ups and downs of the infertility treatment process, all the women discussed utilizing their partners and close friends and/or families as means of support. Most of the women indicated that their main supporter during the infertility treatment was their partner. As the analysis continued it was evident that all the women in this study maintained a level of secrecy concerning their infertility. For some, secrecy meant maintaining employment, but for

stress of the situation escalated with every failed cycle and every level of treatment pursued. Maintaining a sense of the unknown by keeping friends and family at bay was their way of preserving some aspect of themselves and their marital relationship with their spouses. This was revealed, mainly when the men was the cause of the problem. In each interview the women spoke of the stress that they experienced during their infertility experience. Some of the descriptive terms used to define the stress of the experience were chaotic, demanding, confusing, disappointing and frustrating. These results are consistent with the findings of other studies mentioned previously in this article. For some of the women, the stress was heightened by their religious beliefs, as most of the women were of the muslim faith.

This study initially sought to interview the male counterpart of couples who took part in infertility treatment. Nine people were interviewed, but only two of the nine participants were men. However, this was a very noteworthy achievement as there is very little research that has been conducted in this area specifically targeting men to describe the lived experience of infertility. Both men were very willing participants, but the manner in which they shared their experience with the infertility treatment was very different. The first man interviewed answered the questions very straightforwardly with very little emotion, but the second male described his feelings vividly and with much tearful emotion.

The male may not to be the one who must give himself injections, receive injections, have his blood drawn, and undergo numerous vaginal ultrasounds, but he must always be a tremendous support for his wife during the trials of this journey. As such, it is of utmost importance for the men to have resources available to them to create an awareness of the variety of ways infertility will impact their relationship with their wife, family and friends as well as methods for counteracting the stress of the event and demands the treatment will bring into their lives.

For some, the loss of the ability to biologically conceive a child is by far one of the most tragic events for a woman to endure. In doing so, it was evident that grieving for this loss is a very natural part of the journey. Grieving is also necessary to move from the path of turmoil and chaos to one of acceptance, peace, and eventually resolve. The grieving that women endure as a result of infertility is just as complex as it is to grieve for the loss of a loved one, as the process is very similar and the loss goes much deeper than the inability to procreate. For women, ending infertility treatment without success means many things. Many grieve for the loss of time, energy, and financial stability. For other women, grieving also involves accepting the loss of opportunities such as career growth, hobbies and other opportunities. Speaking in terms of relationships, part of the grieving means regret in terms of strained relationships and re-establishing physical as well as emotional intimacy with their husband. Finally, at the very core of grieving means re- defining themselves and making the decision to pursue life without children or a life with an adopted child or children. Whatever path of resolve the woman chooses as the process of getting to the point of acceptance and eventually resolution, the journey begins with denial, anger, acceptance, and then peace. The speed by which each woman proceeds through this process varies and the means by which they work through each level differs.

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DISTRIBUTION AND SPECIES COMPOSITION OF MOSQUITOES IN THREE MALAY RECREATIONAL PARKS

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Abstract

Aim: A study of the mosquito distribution and species composition was undertaken in the recreational parks of Commonwealth, Sendayu and Sendat.
Methods: Human landing catch, CDC-light traps baited with dry ice and resting catch were the applied techniques for collecting the adult mosquitoes, which were performed from 6:00 pm to 06:00 am. Standard taxonomical keys were used to identify the adult mosquito specimens.
Results: 224 adult individuals were captured during this study all in Culicidae family. 1. Genus *Aedes* was represented by three species: *Ae. albopictus*, *Ae. aegypti* and *Ae. niveus*, 2. *Anopheles* four species: *An. maculatus*, *An. karwari*, *An. introlatus* and *An. hodgkini*, 3. *Armigeres* five species: *Ar. durhami*, *Ar. confuses*, *Ar. subalbatus*, *Ar. moultoni* and *Armigeres sp*, 4. *Culex* nine species: *Cx. vishnui*, *Cx. pseudovishnui*, *Cx. quinquefasciatus*, *Cx. sinensis*, *Cx. sitiens*, *Cx. bitaeniorhynchus*, *Cx. tritaeniorhynchus*, *Cx. gelidus* and *Cx. mimulus*, 5. *Mansonia* four species: *Ma. bonneae*, *Ma. indiana*, *Ma. annulifera* and *Ma. uniformis*, and 6. *Culiseta* one not identified species,
Conclusion: *Culiseta sp. Ae. albopictus*, *An. maculatus*, *Ar. durhami* and *Cx. quinquefasciatus* were present in the three stations; meanwhile *Ma. bonneae* only in Commonwealth and Sendat. All the captured mosquito species were plotted to better see their distribution in the three stations. Our study showed that species composition was higher represented by 26 species in 6 genera.

Key words: distribution, Malaysia, mosquito, species composition.

Introduction

Mosquito borne diseases are really a public health problem in areas of their breeding sites. Recreational parks, where people rest, sometimes, serve like mosquito breeding sites. These sites are close to the urban, suburban and even in rural areas inhabited by humans. The vectorial capacity of mosquitoes should be considered as an important factor in public health (1, 2). Many infectious diseases attract human, and mosquitoes are the most important vector of them. Mosquito-borne diseases are not usually considered important problem for public health in the recreational parks in Malaysia, but there should be awareness of their potential and to their vectorial capacity. These diseases are dynamic and their potential, either in the resort, camping areas or their vicinity, can generate adverse publicity that often has a severe economic impact on recreational facilities (1, 2). One of the most complaints from people tries to enjoy the outdoors activity, concern the annoyance caused by the mosquitoes. In addition, recreational park are located close to major natural breeding sites of mosquitoes. Many people try to avoid rustic vacation areas with known mosquito problems and not realizing that these diseases are also transmitted in urban and suburban areas. In response to community concerns about the health and well being of visitors to the recreational park, a study will be undertaken to consolidate and amplify information on distribution and abundance of mosquitoes in these areas (1, 2). Mosquito-borne diseases are a real public health problem worldwide (3). There are many parasites, viruses, bacteria that can be transmitted by insects, and mosquitoes are the most predominant insects in the way of the transmission to the human being. These pathogens can cause very severe diseases to humans with a high mortality rate (3, 4, 5). The science that studies the mosquitoes and other insects of public health is called Medical Entomology. It provide basic concepts of entomology like the knowledge on morphology, taxonomy or systematic, bio-ecology, distribution, habitat preferences, that are good and important information for medical entomology to know the whole life cycle of mosquitoes in order to control their incontinent population growth (3, 4, 5). Identification, distribution, habitat preferences, bio-ecological data and the systematic or taxonomy of mosquitoes play an important role in order to control and prevent infectious diseases caused by them. Seasonality and circadian rhythm of mosquito populations, as well as other ecological and behavioural features, are strongly influenced by climatic factors such as temperature, rainfall, humidity, wind, and duration of daylight (3, 4, 5). Both seasonal and daily activity patterns of mosquito vectors are required as baseline knowledge to understand the transmission dynamics of vector-borne pathogens (3, 4, 5), and have been widely studied for many mosquito species throughout the world (3, 4, 5).

Aim of the study

1. Identification of the distribution and plotting the maps of the mosquito's species and genera in three recreational parks in Malaysia.
2. Identification of the mosquito's species composition in these areas.

Material and methods

Study sites:

This study was undertaken by the Medical Entomology Unit in the Institute for Medical Research, Kuala Lumpur, Malaysia, during the period of June-August 2010. The study was realized in three recreational parks of different habitats. Three study stations are explained.

1. Commenwealth recreational park, Rawang

Latitude: 101Ú36.827' Mean Humidity: 82.27%
Longitude: 03Ú17.740' Mean Temperature: 25.77ÚC
Altitude: 98m

Figure 1. View from Commenwealth recreational park, Rawang

2. Sendayu recreational park, Gombak

Latitude: 101Ú44.137' Mean Humidity: 94.5%
Longitude: 03Ú18.458' Mean Temperature: 22.9ÚC
Altitude: 184m

Figure 2. View from Sendayu recreational park, Gombak.

3. Sungai Sendat recreational park, Hulu Yam

Latitude:101Ú41.088' Mean Humidity: 95.37%
Longitude: 03Ú24.251' Mean Temperature: 23.37ÚC
Altitude: 138m

Figure 3. Different pictures from Sendat recreational park, Hulu Yam.

Techniques of the adult mosquito collection
Adult mosquito collection was performed from 18:00 to 06.00, for the three techniques used (2, 10). A twelve hour period throughout the night was performed during the study. The study was carried out for 12 week every Friday night. The adult mosquito collection methods are defined related to the literature studied (11, 12, 13, 14).

1. CDC light traps collection augmented with dry ice.

The traps were set in forest or close to the human settlements, almost in 18:00 of every night. 12 CDD light traps per night were set for the whole study period. The collection was done before sunrise in the next day morning 06:00. Collected mosquitoes we put in small vials with a piece of wet cotton pad to be protected from the high environmental temperature and low environmental humidity. All the small container or vials were labelled according to the number of CDC traps set (11, 12, 13, 14).

2. Human landing catch.

Three groups of staff were divided by 4 or 3 persons to count and collect the human landing of adult female mosquitoes. Legs and arms were kept bare to attract the female mosquitoes. The mosquitoes were immediately captured into small vials for not permitting them to bite. Small vials were labelled with the hour and group collection, to be identified later in the lab. A piece of wet cotton was put in the bottom of every vial to maintain the needed humidity and temperature (15, 16, 17).

3. Resting catch.

Mechanical aspirators and torch lights were used in different time of the night. Every collection was done for half an hour, to find and collect the adult mosquitoes resting in their resting places like tree leaves, rocky and wall crevices etc (1. 2).

Mosquito vials and containers, for the three collection techniques, were particularly stored in cooled boxes, to prevent the humidity loss and the destruction of the mosquito identification features. In every label were noted the place of collection, techniques of collection, time of collection and capturing, date, the number of specimen captured etc. (11, 12, 13, 14). The identification was performed after the return in the lab using the stereomicroscope and the standard identification key (18).

Results and Discussion

Distribution and species composition of mosquitoes
A total of 224 mosquito specimens were trapped. They belonged to 26 species all in Culicidae family. Respectively, *Aedes* genus 3 species: *Aedes albopictus*, *Aedes aegypti* and *Aedes niveus*; *Anopheles* genus 4 species: *Anopheles hodgkini*, *Anopheles introlatus*, *Anopheles karwari* and *Anopheles maculatus*; *Armigeres* genus 5 species: *Armigeres confuses*, *Armigeres durhami*, *Armigeres moultoni*, *Armigeres subalbatus* and one unidentifyied species *Armigeres sp.*, *Culex* genus 9 species: *Culex bitaeniorhynchus*, *Culex gelidus*, *Culex mimulus*, *Culex pseudovishnui*, *Culex quinquefasciatus*, *Culex sinensis*, *Culex sitiens*, *Culex tritaeniorhynchus* and *Culex vishnui*, *Culiseta* genus only an unidentified species *Culiseta sp.*, *Mansonia* genus 4 species: *Mansonia bonneae*, *Mansonia annulifera*, *Mansonia indiana* and *Mansonia uniformis*. Table 1 shows the distribution and the number of species captured for all the three study stations of the Selangor recreational parks. The last column shows the total number of the species captured and individuals per each species for these three stations. As we can see, more than 50% of all the captured individuals are collected in the Commonwealth station; meanwhile, in the two other stations we have captured almost the same percentage of 22-23.

Table 1. Number of mosquito species and specimen per species captured for the three stations

No	Mosquito species captured	No. of individuals captured per species per each station/locality/area			Total No. of individual per species in all the stations.
		Comonwealth	Sedayu	Sendat	
1	*Aedes aegypti*		1		1
2	*Aedes albopictus*	33	8	11	52
3	*Aedes niveus*			2	2
4	*Anopheles hodgkini*		1		1
5	*Anopheles introlatus*			3	3
6	*Anopheles karwari*		1		1
7	*Anopheles maculates*	1	13	24	38
8	*Armigeres confuses*	35			35
9	*Armigeres durhami*	4	2	2	8
10	*Armigeres moultoni*	1			1
11	*Armigeres sp*			2	2
12	*Armigeres subalbatus*	1			1
13	*Culex bitaeniorhynchus*	1			1
14	*Culex gelidus*	1			1
15	*Culex mimulus*	1			1
16	*Culex pseudovishnui*	6	6		12
17	*Culex quinquefasciatus*	6	1	1	8
18	*Culex sinensis*		1		1
19	*Culex sitiens*	1			1
20	*Culex tritaeniorhynchus*	1			1
21	*Culex vishnui*	18	14		32
22	*Culiseta sp*		1		1
23	*Mansonia annulifera*	1			1
24	*Mansonia bonneae*	11		2	13
25	*Mansonia indiana*		5		5
26	*Mansonia uniformis*			1	1
Total no of species per each station		**16**	**12**	**9**	**28**
Total no of individuals per each station		**122**	**54**	**48**	**224**
Total no of mosquito captured		**224**			

Only 4 mosquito species were present in all the three stations: *Aedes albopictus*, *Anopheles maculates Armigeres durhami* and *Culex quinquefasciatus*. A total of 52 individuals of *Ae. albopictus* were captured; 33 of them were captured in Commonwealth station, 8 of them in Sendayu and 11 of them in Sendat station. A total of 38 individuals of *An. maculatus* were captured; 1 was captured in Commonwealth station, 13 of them in Sendayu and 24 of them in Sendat station. *Ar. durhami* and *Cx. quinquefasciatus*, were also captured in all these three stations. For the presence and distribution of other species look the table 1.

Distribution and mapping of the mosquito species

Diurnal and nocturnal activity and movement of adult mosquitoes are related to the searching for the breeding sites, partners, food, water sources and dams, shaded places, hidden places to be protected from the heat, temperature, humidity, and predators (1, 2, 3, 4, 5, 6). The density of population is related to some of these ecological factors (1, 2, 3). The mapping of the distribution and presence of the mosquitoes species is shown in the below paragraphs. Every species in the map is showed by a symbol and the colour of the symbol. The size of the symbol show the density and the number of mosquito, as bigger the symbol, as higher the number of individuals captured. The study showed that the Commonwealth station had a higher density compared to Sendayu and Sendat stations. The low density of mosquito population is related to the ecological and environmental conditions like precipitation, wind and temperature (3, 4, 5, 6). This weather has a negative influence on the diurnal and nocturnal activity of mosquito

population (3, 4, 5, 6). In these conditions the number of adult mosquitoes has a declined tendency (3, 4, 5, 6). During our expeditions in the Sendayu and Sendat stations the weather conditions have been unfavourable for mosquito activity. This was the main reason of the low number and density of mosquitoes.

Figure 4 shows the map of Selangor region and the location of the three study sites: Commonwealth, Sendayu and Sendat. In the below paragraphs, we are demonstrated the distribution and the mapping for all the species of mosquitoes collected, showing even the number of individuals per species captured.

Figure 4. Selangor map showing the three stations of Commonwealth, Sendayu and Sendat

As we can see from the map in figure 5, *Ae. albopictus* is present in the three stations of the study. As it can be seen from the size of the symbols, *Aedes ablopictus* has a higher density of caught (52 individuals in total) in comparison with *Aedes niveus* (2 individuals) and *Aedes aegypti* (1 individual), which are present, respectively in Sendat and in Sendayu.

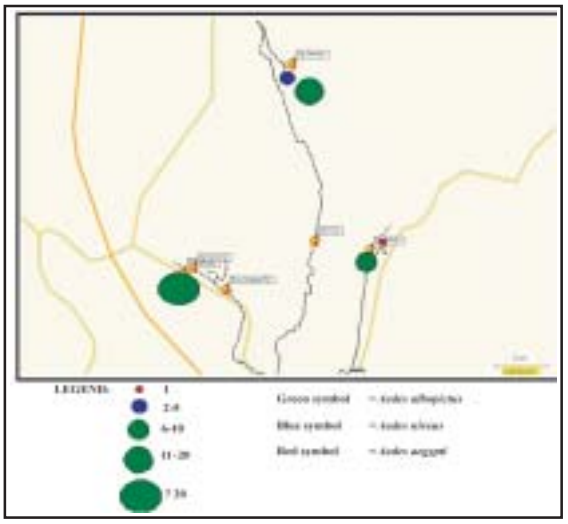


Figure 5. Distribution of* Aedes *species in the three study sites in Selangor, Malaysia

Figure 6 shows a map of the location of the three stations and the distribution or the presence of *Anopheles* species. We can see from the map that *Anopheles maculatus* is present in the three stations of the study. As it can be seen from the size of the symbols, *Anopheles maculatus* were more caught (38 individuals in total) in comparison with three other species. *Anopheles introlatus* is present only in Sendat with 3 individuals; *Anopleles karwari* and *Anopheles hodgkini* are present only in Sendayu with only one individual respectively.

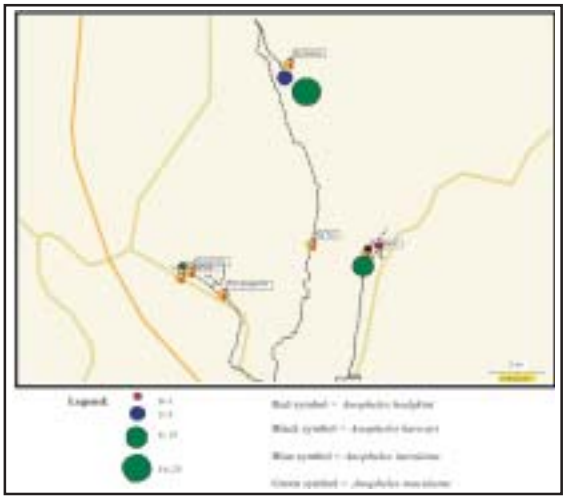


Figure 6. Distribution of* Anopheles *species in the three study sites in Selangor, Malaysia

Figure 7 shows a map of the location of the three stations and the distribution or the presence of the species of *Armigeres* genus. We can see from the map that *Armigeres confuses* is present only in the station of Commonwealth and high number was collected here (35 individuals). As it can be seen from the size of the symbols, *Armigeres confuses* has a higher density in comparison with four other species. *Armigeres durhami* is present in the three stations, but with a low density of 4, 2 and 2 individuals for Commonwealth, Sendayu and Sendat.

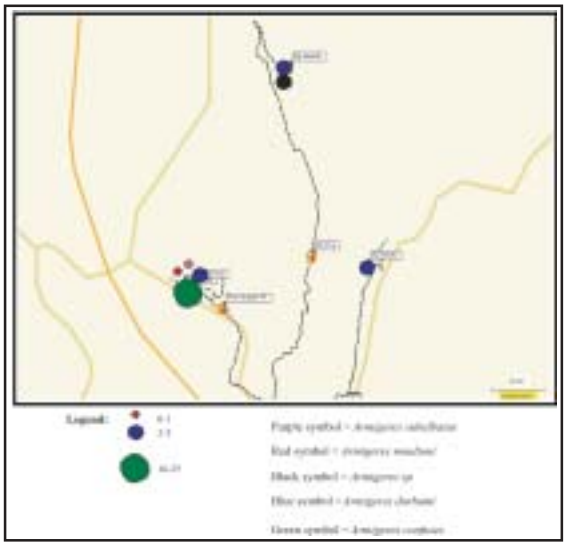


Figure 7. Distribution of* Armigeres *species in the three study sites in Selangor, Malaysia

Figure 8 shows a map of the location of the three stations and the distribution or the presence of the species of *Culex* genus. We can see from the map that *Culex vishnui* is present in the station of Commonwealth and Sendayu with higher density. As it can be seen from the size of the symbols, *Culex vishnui* has a higher density in comparison with eight other species. *Cx. pseudovishnui* is present in the same stations where *Cx. vishnui* is, but with a lower density compared to *Cx. vishnui* of 6 individuals for Commonwealth and 6 individuals for Sendayu. *Cx. quinquefasciatus* is present in the three stations, but it has a very low density, 6 individuals in Commonwealth and represented by 1 individual in the two other stations. Six other species of this genus have a very low density represented by 1 individual each. *Cx. gelidus*, *Cx. mimulus*, *Cx. tritaeniorhynchus*, *Cx. bitaeniorhynchus* and *Cx. sitiens* are represented only in Commonwealth by 1 individual. *Cx. sinensis* is represented only by 1 individual in Sendayu station.

Figure 8. Distribution of* Culex *species in the three study sites in Selangor, Malaysia

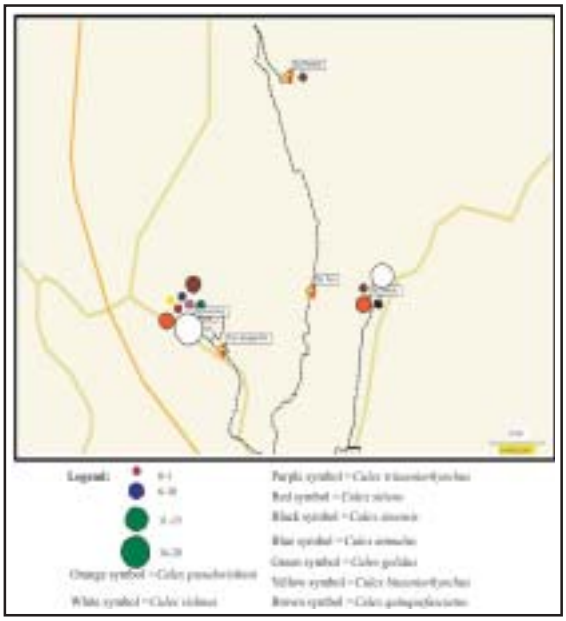


Figure 9 shows a map of the location of the three stations and the distribution or the presence of *Mansonia* species. We can see from the map that *Mansonia bonneae* is present in the station of Commonwealth and Sendat. As it can be seen from the size of the symbols, *Mansonia bonneae* has a higher density in comparison with 3 other species in Commowealth station. *Mansonia indiana* is present only in Sendayu. *Mansonia annulifera* is present only in Commonwealth and *Mansonia uniformis* is present only in Sendat.

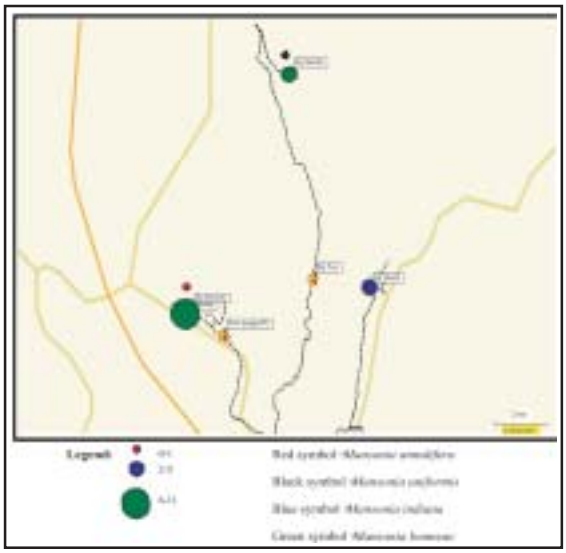
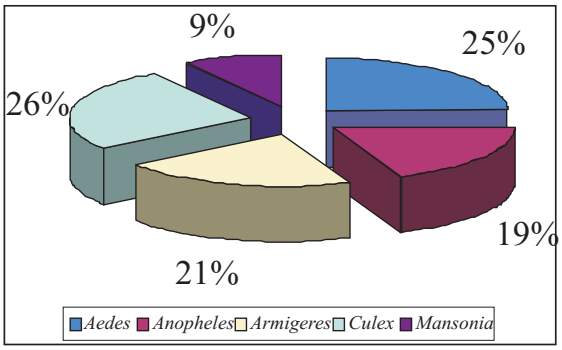


Figure 9. Distribution of* Mansonia *species in the three study sites in Selangor, Malaysia

Species composition of the collected mosquitoes

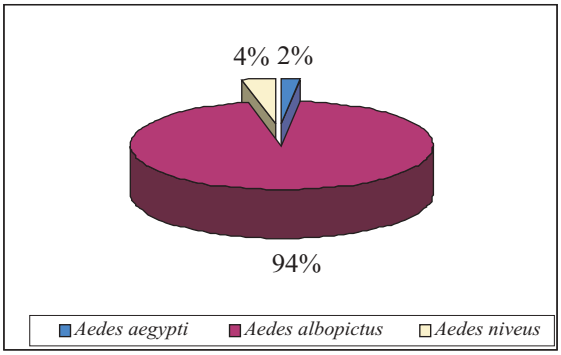
Graphic 1 shows five main genera of mosquitoes collected during this study. The most predominant genera collected are genus *Aedes* (26.0%) and genus *Culex* (25.0%). Meanwhile, the 3 other genera have a respectively percentage: *Armigeres* (21.0%), *Anopheles* (19.0%) and *Mansonia* (9.0%).

Graphic1. Composition and percentage of the 5 main genera captured



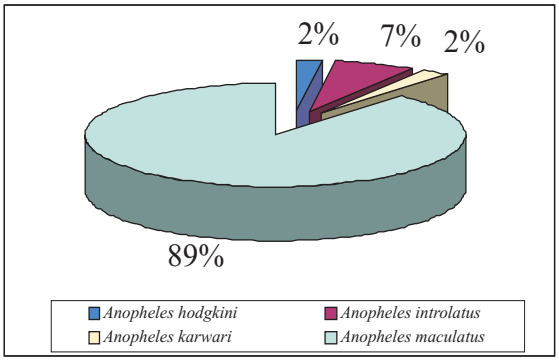
Graphic 1 shows the species composition and the percentage of *Aedes* mosquitoes. We can see that the most predominant species collected is *Aedes albopictus* (94.0%). The two other species were *Aedes aegypti* (2.0%) and *Aedes niveus* (4.0%).

Graphic 2. Species composition and percentage of* Aedes *mosquitoes



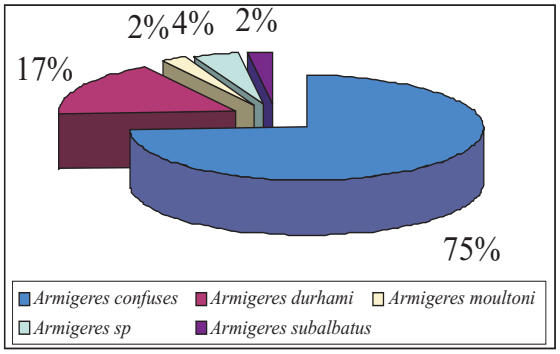
Graphic 2 shows the species composition and the percentage of *Anopheles* mosquitoes. The most predominant species collected was *Anopheles maculatus* (89%). The three other species were *Anopheles introlatus* (7.0%), *Anopheles karwari* (2.0%) and *Anopheles hodgkini* (2.0%)

Graphic 3. Species composition and percentage of* Armigeres *mosquitoes



Graphic3. shows the species composition and the percentage of *Armigeres* mosquitoes. The most predominant species collected were *Armigeres confuses* (75.0%) and *Armigeres durhami* (17.0%). Meanwhile, the 3 other species have a respectively percentage of 4.0% for *Armigeres sp* and 2.0% for *Armigeres subalbatus* and *Armigeres moultoni.*

Graphic 4. Species composition and percentage of* Armigeres *mosquitoes



Graphic 4 shows the species composition and the percentage of *Culex* mosquitoes. The most predominant species collected were *Culex vishnui* (54.0%), *Culex pseudovishnui* (20.0%) and *Culex quinquefasciatus* (14.0%). Meanwhile, the 6 other species have a respectively percentage of 2.0% for each of them: *Culex bitaeniorhynchus*, *Culex mimulus*, *Culex sinensis*, *Culex sitiens*, *Culex tritaeniorhynchus* and *Culex gelidus*.

Graphic 5. Species composition and percentage of* Culex *mosquitoes

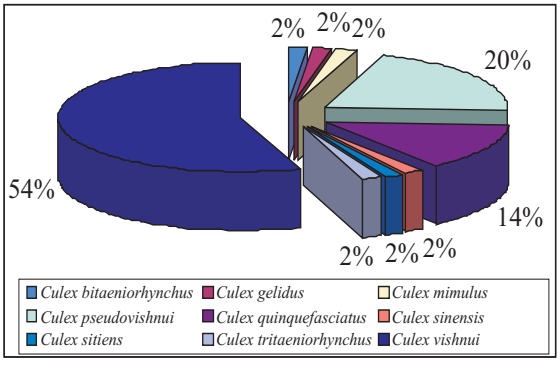
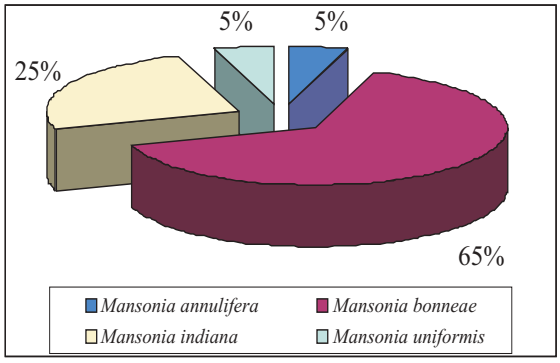


Figure 15 shows the species composition and the percentage of *Mansonia* mosquitoes. The most predominant species collected were *Mansonia bonneae* (65.0%) and *Mansonia indiana* (25.0%). Meanwhile, the 2 other species have a respectively percentage of 5.0% for *Mansonia annulifera* and *Mansonia uniformis*.

Graphic 6. Species composition and percentage of Mansonia (Coquillettidia) mosquitoes



Conclusion

Our study showed that there was a high rate of the mosquito species composition for the three recreational parks in Selangor, Malaysia, represented by 26 species in and genera.
There was a high biological diversity for mosquito population in these areas.

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PANDEMIC A(H1N1) INFLUENZA AMONG IMMUNE-COMPROMISED PATIENTS

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Abstract

Aim: A(H1N1) pandemic influenza had its own problematic clinical, prognostic and treatment issue among immune-compromised patients. The aim of this study is to give an overview of our experience at infectious diseases clinic of University Hospital in Tirana in regard with novel pandemic influenza among immune-suppressed patient during the period May 2009-January 2010.

Methods: Prospective collection of data for 84 immune-compromised patients confirmed with pandemic AH1N1 influenza. We highlighted the causative illness of immunodeficiency, the respiratory involvement, etiologic therapy, need for supportive therapy and mortality rate.

Results: We distinguished eight reasons of immunodeficiency: diabetes in 28.6% of cases, cardiac diseases 25%, pulmonary diseases in 19% of cases, HIV/AIDS infection in 9.5% of cases, corticoid therapy in 8.3% of cases, chronic hepatitis 3.6%, transplantation in 3.6% of cases, chemotherapy in 2.3% of cases. 27.3 % of immune-compromised patients developed ARI. Oxygen therapy was successful in 88.3% of ARI patients. Mortality rate was 2.4%.

Conclusion: Early diagnosis of a respiratory illness during times of influenza outbreak, with prompt treatment with neuraminidase inhibitors, aggressive support with oxygen ventilation and subsequent organ dysfunction correction provide opportunities to mitigate the progression of disease and mortality.

Key words: diabetes, immune-suppression, pandemic influenza, transplant.

Introduction

Pandemic Influenza AH1N1 presented its issues related to the clinical context, treatment and prognosis of patients with compromised immunity. Seasonal influenza is responsible for increased mortality and the cause of hospitalizations during the winter, especially among the elderly, children under 5 years of age and high-risk individuals, who suffer from chronic cardiovascular and lung disease [1-3].

Morbidity and mortality rate from influenza varies each year and depends on several factors including the predominant strains circulating influenza virus [4].

Since the emergence of pandemic influenza A (H1N1) in April 2009 and the first concerns about the risk for severe respiratory illness, efforts have been made to understand quickly the severity and impact of this new flu virus. Studies conducted earlier in different hospitals have shown a low case fatality ratio (CFR) [5-8]. Persons with risk factors for severe complications from seasonal influenza such as respiratory disease, including asthma treated in the last three years; chronic heart disease, chronic liver disease, chronic renal disease, chronic neurological disease, stroke/transient ischemic attack, and immune-suppression through disease or its treatment also appear to be at risk of severe illness from pandemic 2009 influenza A(H1N1) infection [9-13]. Others have reported an association of diabetes and obesity with pandemic 2009 influenza A(H1N1) infection which were the most frequently identified underlying conditions in fatal cases older than 20 years worldwide [14-16].

The aim of this study was to describe the clinical and epidemiologic features of pandemic 2009 influenza A(H1N1) among hospitalized patients with compromised immunity.

Material and methods

The study included patients who were hospitalized with laboratory confirmed pandemic 2009 influenza A(H1N1) infection at Infectious Disease Hospital between May 2009 - January 2010.

Data were collected prospectively from the patient's medical records: the cause of immune deficiency, the involvement of respiratory system, the treatment of patients, the need for supportive therapy, mortality and its causes.

The analysis of data was carried out using SPSS 16.0 software. Continuous variables are summarized as mean ± standard deviation and ÷² test was used to compare the proportions between variables. The p value d"0.05 was considered statistically significant.

Results and Discussion

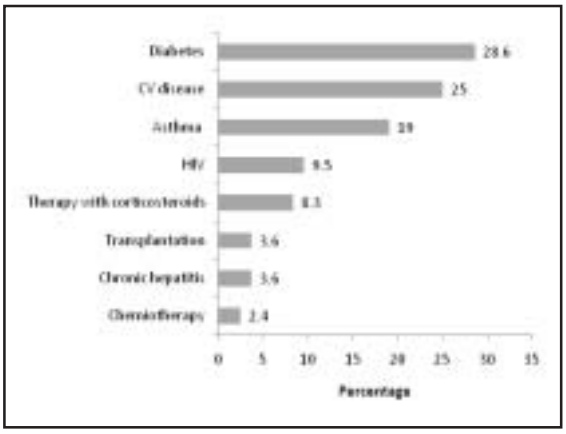
The study involved 84 patients with confirmed pandemic influenza virus. The median age of patients was 40 (±11SD) years. The study identified eight main causes of the shortage of immunity (Table 1). Diabetes was found in 24 (28.6%) patients followed by cardio vascular disease in 21 (25%) patients, while pulmonary disease (bronchial asthma) ranked third in 16 (19%) patients. HIV infection was observed in 8 (9.5%) patients. 3 of 8 cases of HIV have developed AIDS and were under antiretroviral therapy. 7 (8.3%) patients were on therapy with corticosteroids. Chronic viral hepatitis was found in in 3 (3.6%) patients, two patients from hepatitis B virus and one of them by hepatitis C virus. Organ transplantation in 3 (3.6%) patients, one of them had undergone bone marrow and two others kidney transplantation. 2 (2.4 %) patients were on chemotherapy. Differences across underlying conditions are statistically significant (÷² = 50.1, p <0.01).

Table 1. Underlying conditions of patients with pandemic influenza

Disease	N	%
Diabetes	24	28.6
CV disease	21	25
Asthma	16	19
HIV	8	9.5
Therapy with corticosteroids	7	8.3
Chronic hepatitis	3	3.6
Transplantation	3	3.6
Chemotherapy	2	2.4
Total	**84**	**100.0**

X^2 =50.1, p<0.01

Graphic 1. Underlying conditions of patients with pandemic influenza

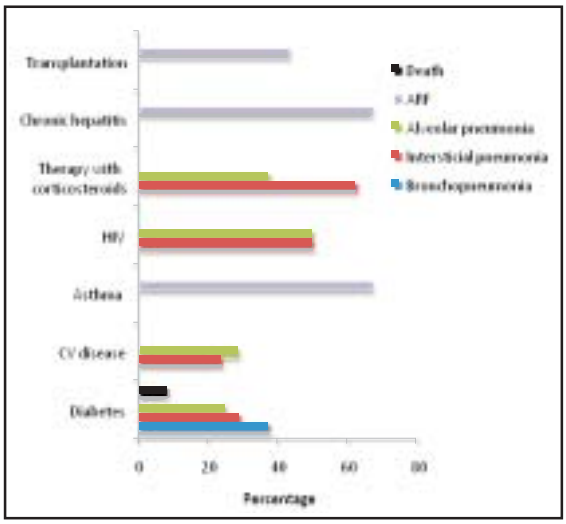


33 (39.3%) patients developed alveolar pneumonia with a statistically significant difference with other symptoms ($\div^2$ = 45.5, p <0.01). Interstitial pneumonia ranked second in 25 (29.8%) patients, followed by bronchopneumonia in 9 (10.7%) patients, and acute respiratory failure (ARF) in 7 (8.3%) patients. (Table 2)

Table 2. Pulmonary complications

	Bronco pneumonia	Interstitial pneumonia	Alveolar pneumonia	ARF	Death
	n (%)	n (%)	n (%)	n (%)	n (%)
Diabetes	9 (37.5)	7 (29.2)	6 (25.0)		2 (8.3)
CV disease		5 (23.8)	16 (28.6)		
Asthma				2 (66.7)	
HIV		8 (50.0)	8 (50.0)		
Therapy with corticosteroids		5 (62.5)	3 (37.5)		
Chronic hepatitis				2 (66.7)	
Transplantation				3 (43.0)	

Graphic 2. Pulmonary complications



9 (37.5%) of 24 cases with diabetes developed pneumonia and 6 (25.0%) of them developed acute respiratory insufficiency. Three of them underwent invasive oxygen therapy and three of them CPAP therapy. Two (8.3%) patients with diabetes did not survive, representing a mortality rate of 2.4%, 95% CI (0.6 - 8.3). One of them developed staphylococcal and the other interstitial pneumonia. Seven (29.2%) patients developed interstitial pneumonia and 6 (25.0%) developed alveolar pneumonia. 16 (28.6%) of 21 patients with cardiac disease developed alveolar pneumonia and five (23.8%) out of them manifested acute respiratory failure, of whom two patients suffered from cardiac failure, two patients had heart valves replacement and one suffered from

a severe hypertension. Oxygen therapy proved to be successful in four patients with facial mask and via endo-tracheal intubation at the other patient. One (33.3%) of three patients with chronic hepatitis B was on the pre-cirrhotic stage and developed acute respiratory failure. Eight (50%) of 16 cases with asthma developed alveolar and eight (50%) interstitial pneumonia. Six patients complicated with acute respiratory failure which was improved following non-invasive oxygen therapy.

Out of three transplanted patients, two (66.7%) of them developed acute respiratory failure due to interstitial pneumonia. Administration of CPAP therapy yielded good results. Five (62.5%) of eight patients infected with HIV developed interstitial pneumonia and three (37.5%) of them alveolar pneumonia. None of them manifested acute respiratory failure. Three (43%) of seven patients on corticosteroids therapy developed ARF. Oxygen therapy with facial mask proved successful. None of the two patients on chemo-therapy developed severe disease. All patients received the antiviral therapy with oseltamivir. In total, 27.3% of immune-compromised patients developed acute respiratory failure. Oxygen therapy was successful in 88.3% of patients with ARF, ($p<0.01$).

Conclusion

Pandemic A(H1N1) influenza is associated with a severe hypoxemic respiratory failure, which often requires prolonged mechanical ventilation. The reason for severe hypoxemia seen among these patients is still a matter of debate but non-invasive oxygen therapy can be used with good results for atelectatic alveoli reduce, pulmonary compliance improve and the respiratory load decrease [17-18]. Our experience supports the evidence from other studies that non-invasive ventilation plays animportant role in the treatment of acute respiratory failure especially in patients with compromised immunity, reducing the need for ICU beds and improving the prognosis [19-22]. Early diagnosis of respiratory disease during the outbreak, rapid treatment with neuraminidase inhibitors, aggressive support with oxygen ventilation and subsequent organ dysfunction correction provide opportunities to mitigate the progression of disease and mortality.

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BIOCHEMICAL AND HAEMATOLOGICAL FEATURES OF PANDEMIC INFLUENZA A(H1N1) 2009 IN ALBANIA

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Abstract

Aim: H1N1 pandemic influenza in Albania was accompanied with characteristic changes in blood examination which helped in early diagnosis of influenza in patients with acute febrile respiratory illness. The aim of this study was to describe detailed biochemical and haematological features of pandemic A(H1N1) influenza among healthy adults population.
Methods: We report laboratory findings of 250 patients confirmed with Pandemic Influenza presented at Infectious Diseases clinic, UHC, Tirana during the period May 2009-February 2010.
Results: Increased ALT resulted in 28.8% of cases. Increased AST resulted in 26% of cases. Increased CK resulted in 33.2 percent of cases. Increased LDH was found in 31.6% cases. The number of leukocytes was altered in 52.8% of patients. Thrombocytopenia was found in 26.7% patients. Lymphopenia was in 76 (30.4%) of patients. Regarding the hepatic and renal functions values among severe patients were significantly higher compared to non severe patients.
Conclusion: The hematologic and biochemical indicators are convenient, rapid, and beneficial for clinical evaluation of progression, improving the survival rate of severely ill patients, the, curative effect and prognosis of the disease.

Keywords: biochemical indicators, influenza A(H1N1), laboratory diagnosis.

Introduction

Pandemic A(H1N1) influenza has spread in many countries in the world. Albania reported a large number of people with mild disease through influenza surveillance system, but the full spectrum of clinical disease has not been determined so far [1]. Children and the elderly are at high risk for severe disease from seasonal influenza while more than half of our pandemic influenza patients were between 15 and 47 years and previously healthy [2]. While most cases of pandemic influenza had a mild clinic it also caused serious illness.

Some severely ill patients developed pneumo-nia or other complications, which resulted in a fatal outcome [3-6]. Many studies have focused on risk factors for severe disease, the effectiveness of early treatment with oseltamivir and protection against seasonal influenza vaccination [7-10]. Early laboratory diagnosis of influenza A (H1N1) infection is beneficial to improving the survival rate, especially for patients with severe disease.

Diagnosis of pandemic influenza is complex, based on epidemiological data, clinical, radiological, haematologic and biochemical, cultural and serological findings.

There are very few published studies focused on the characteristic changes in the examination of the blood of patients with acute respiratory disease and fever which would help in early diagnosis of influenza and can use the hema-tologic markers of this global pandemic diseaseas reference [11-12].

The aim of this study was to describe the biochemical and haematological characteristics of pandemic H1N1 influenza among healthy adult patients.

Material and Methods

The study included 250 patients with confirmed pandemic influenza A(H1N1) during the period May 2009-February 2010, who presented at infectious diseases hospital at University Hospital Centre "Mother Teresa" with acute febrile respiratory illness. Patients with underlying conditions were excluded from the study. Each patient underwent a detailed examination of biochemical and haematological parameters.

Data were analysed using STATA 12.0 software. T-test for independent samples was used to compare the continuous variables. The percentage of patients in each category was calculated for categorical variables and associated p-value for a single proportion (two-tailed) was reported. P-values d"0.05 were considered statistically significant.

Results

Mean age (±SD) of patients was 36±2.8 years, range 15-82 years. 161(64.4%) were males and 89 (35.6%) females, $p<0.01$.

The haematological and biochemical analysis of influenza A (H1N1)-infected patients was performed on the day of their admis-sion.

ALT was increased in 72 (28.8%) of total cases. Its values ranged from 40 – 120 IU/l in 41 (56.9%) of 72 patients $p<0.01$; 12 (29.3%) of these patients had bronchitis, 15 (36.6%) patients had bronco-pneumonia, while 14 (34.1%) had pneumonia. Levels of ALT from 121 – 600 IU/l were found in 25 (34.7%) of 72 patients; 12 (48%) of them had bronco-pneumonia and 13 (52%) of them had pneumonia. ALT levels > 600 IU/l were found in 6 (8.3%) of those patients, all of whom had pneumonia complicated with acute respiratory failure (table 1).

Increased AST levels were found in in 65 (26%) of total cases. AST ranged from 35 - 120 IU/l in 44 (67.7%) of 65 patients, $p<0.01$; 11 (25%) of these patients had bronchitis, 14 (31.8%) patients had bronco-pneumonia, 19 (43.2%) patients had pneumonia.

21 (32.3%) of 65 patients had AST values from 121 - 600 IU l; 7 (33.3%) of these patients had bronco-pneumonia, while 14 (66.7%) patients had pneumonia, (figure 1). Total bilirubinemia resulted within normal limits.

Table 1. Biochemical and haematological parameters among influenza patients with bronchitis, bronco-pneumonia and pneumonia

		Bronchitis	Bronco pneumonia	Pneumonia	Total
		n (%)	n (%)	n (%)	
ALT	40-120 IU/l	12 (29.3)	15 (36.6)	14 (34.1)	41
	121-600 IU/l		12 (48.0)	13(52.0)	25
	>600 IU/l			6 (100)	6
AST	35-120 IU/l	11(25.0)	14 (31.8)	19 (43.2)	44
	121-600 IU/l		7 (33.3)	14 (66.7)	21
Leucocytes	Leucopenia	37 (28.6)	44 (33.9)	21 (37.5)	113
	Leukocytosis		26 (66.7)	13 (33.3)	59
Lymphocytes	Lymphopenia		64 (84.2)	12 (15.8)	76
CK		57 (68.7%)		26 (31.3%)	83
LDH			58 (73.4%)	21 (26.6%)	79

WBC count was altered in 132 (52.8%) of cases; 118 (47.2%) out of the total of 250 patients had leukocyte counts within normal limits, 103 (41.2%) patients had leucopenia ranging from 1500-3000 of whom 20 (19.4%) had bronchitis 30 (29.1%) had bronco-pneumonia and 53 (51.5%) had pneumonia.

29 (11.6%) patients had leukocytosis, of whom 9 (31%) patients had bronco-pneumonia and 20 (69%) patients had bacterial pneumonia.

Lymphopenia was found in 76 (30.4%) patients, of whom 57 (75%) patients had bronco-pneumonia, 12 (15.8%) patients had pneumonia and 7 (9.2%) patients developed acute respiratory failure.

Thrombocytopenia was found in 67 (26.7%) patients. Values 50000-150000 were found in 59 (88%) of these patients and severe thrombocytopenia <50000 mm^3 was found in 8 (12%) patients. All these patients had acute respiratory failure.

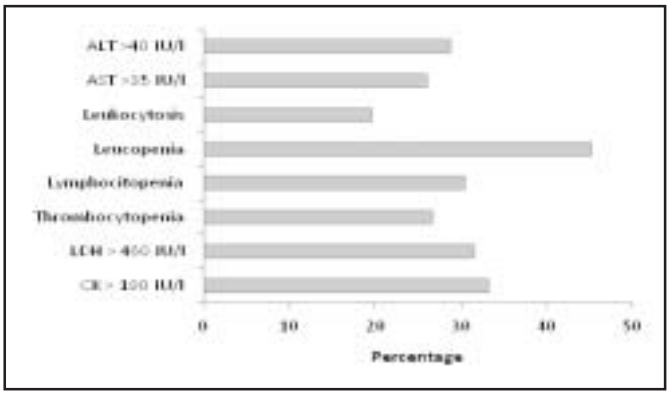
Increased levels of creatine-kinase (CK) were found in 83 (33.2%) patients; 57 (68.7%) of these patients had trachea-bronchitis while 26 (31.3%) patients had pneumonia.

Increased levels of lactate dehydrogenase (LDH) were found in 79 (31.6%) cases; 58 (73.4%) of these patients had bronco-pneumonia and 21 (26.6%) had pneumonia.

The erythrosedimentation rate was increased in 72 (28.8%) cases. 37 (51.4%) of these patients had bronco-pneumonia, 28 (38.8%), pneumonia and 7 (9.7%) patients had acute respiratory failure.

The erythrocyte count, haemoglobin and haematocrit levels were found within normal limits in almost all patients.

Figure 1. Abnormal value of biochemical and haematological parameters (percentage)

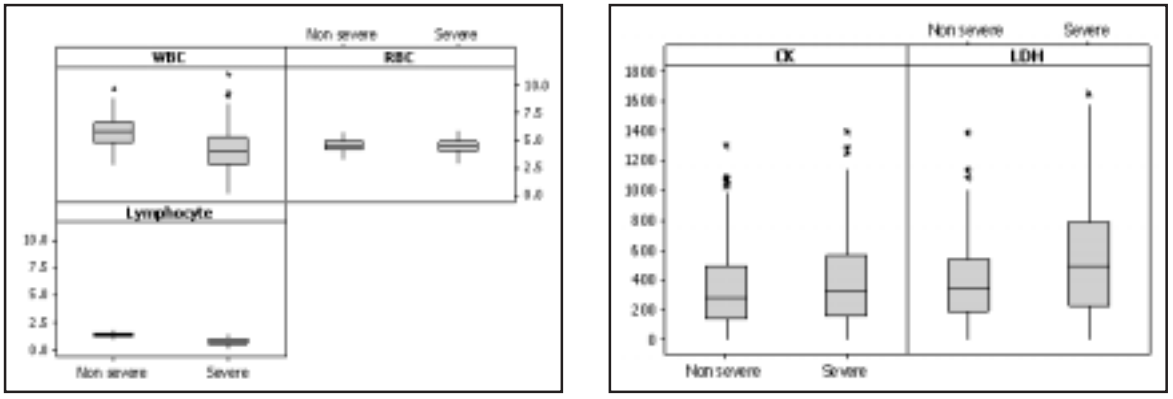


More than half of the 70 severely ill patients showed decreased total WBC and lymphocytes, which was significantly different from that of the mildly ill patients. The lymphocytes could recover to a normal limit after the patients' condition improved, which was a significant predictor for clinical prognosis. Regarding the hepatic and renal functions values among severe patients were significantly higher compared to non severe patients, (table 2).

Table 2. Laboratory results: blood cell, hepatic and renal functional analysis of A(H1N1) patients on admission (mean ± SD)

Biochemical and haematological parameters	Non severe (n=180)	Severe (n=70)	P
RBC (x10^6)mm^3	4.5 (±0.5)	4.4 (±0.6)	0.2
WBC (x10^3)	5.7 (±1.5)	4.1(±1.9)	<0.01
Lymphocyte (10^3) mm^3	1.4 (±0.2)	0.8 (±0.3)	<0.01
Platelet(x10^3) mm^3	193.4 (± 27.4)	161.4 (± 31.5)	<0.01
ALT (IU/l)	27.5 ± 20.4	50.8 (± 76.4)	<0.01
AST (IU/l)	29 (±15)	36.7 (± 20)	<0.01
CK (UI/l)	167.2 (± 38.3)	216.9 (± 44.3)	<0.01
LDH (UI/l)	316.8 (± 259.8)	469.8 (± 322.8)	<0.01

Figure1. Comparison of laboratory results between severe and non-severe A(H1N1) patients on admission



Discussion

A(H1N1) pandemic influenza infection was a disease with a clinical spectrum ranging from mild to severe cases. Patients, most of them previously healthy, were infected by the pandemic virus and the disease has progressed over a period of 5 to 7 days, to bronco-pneumonia, pneumonia, and findings that meet the criteria for acute lung damage or acute respiratory failure.

As in other countries, this was our first experience in Albania with pandemic influenza and our study findings provide several significant hematologic and biochemical indicators and diagnostic criteria of A(H1N1) infection as reference for the future. Among important laboratory findings were the total number of leukocytes within normal values while the lymphocytes decreased. This was a characteristic of A(H1N1) infected patients which

was different from the clinical signs of the common respiratory viruses infection, such as rhinovirus and respiratory syncytial virus with increased level of lymphocytes [13].
Increased ALT and AST levels as well as creatine kinase and lactate dehydrogenase occurred among severe patients. These indicators were relevant to the severity of the disease in the acute phase.
Our findings are similar and consistent with several other few published studies which add to the better understanding of the disease [14-15].
The hematologic and biochemical indicators are convenient, rapid, and beneficial for clinical evaluation of progression, improving the survival rate of severely ill patients, the curative effect and prognosis of the disease.

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ASSESSMENT OF THYROID FUNCTION IN PATIENTS WITH- β THALASSEMIA

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Abstract

Background: We assessed the prevalence and types of thyroid dysfunction among thalassemia patients in the context of recent advances in treatment of these patients including various chelation and transfusion regimens which dramatically increased their life span, aiming to early diagnosis and treatment of hypothyroidism caused by thalassemia.

Methods: A transversal study was conducted among 50 β-thalassemia major and intermedia patients. Patients were subjected to full history taking including transfusion and chelation history, clinical examination, performing complete blood count, measuring serum alanine transaminase and Aspartate transaminase, serum ferritin, and thyroid profile evaluation by measuring free triiodothyronine, free thyroxin and thyroid stimulating hormone using Immulite analyzer by chemiluminescent immunometric assay.

Results: 12 (24%) cases were diagnosed as primary hypothyroidism. Among these, one case had biochemical overt hypothyroidism (low FT4 and/or FT3, increased TSH) and the 11 other cases had subclinical hypothyroidism (normal FT4, FT3, increased TSH). A weak positive correlation was found between TSH level and AST *($r=0.28$, $P<0.05$)*, and accordingly, mean AST levels were also found to be high in hypothyroid patients than those euthyroid ones (87.583±70.760 vs. 46.855±29.731, respectively, p=0.006), which might be explained by the associated iron overload in the liver. No statistically significant correlation was found between thyroid functions with age, hemoglobin level, serum ferritin, frequency of blood transfusion and chelator types.

Conclusion: Primary hypothyroidism is prevalent among thalassemia patients mostly in the form of sublinical hypothyroidism. Screening for thyroid dysfunction in β-thalassemia major and intermedia patients is mandatory for early detection, diagnosis and treatment of primary hypothyroidism.

Key words: Thalassemia, thyroid, hypothyroidism, iron overload

Introduction

Thalassemia is a hereditary anemia resulting from decrease or even absence in the production of β-globin chains of hemoglobin This is consequent to that beta-globin synthesis is either absent or markedly reduced(1-2). The result is excessive production of alpha-globin chains which are incapable of forming a viable hemoglobin tetramer in lack of enough β-globin chains. In consequence, accumulation of á-globin chains, with its denaturation products (hemichromes and inclusion bodies) and degradation products (the globin itself, heme, hemin and free iron) leads to ineffective erythroposis at the RBCS precursor level as well as hemolysis at the RBCs level. (3-5). As a result, anemia and iron overload reveals. Both anemia and iron overload are the main lines in the systemic pathophysiology of thalassemia (3).

Concerning the degree of anemia, ß-thalassemias include four clinical syndromes of increasing severity, namely, the silent carrier state,

ß-thalassemia trait ,the thalassemia intermedia and the thalassemia major. The silent carrier state, ß-thalassemia trait are generally asymptomatic, whilst the intermedia and major states are the ones which we concern. Thalassemia major patients suffer from severe anemia that needs regular transfusion starting from the first year of life, while intermedia patients, who have less severe form of anemia, need much less frequent transfusions (6-7).

Regarding to iron overload, it causes most of the mortality and morbidity associated with thalassemia. Iron deposition occurs in various organs mainly in the heart, liver, and endocrine glands,such as pituitary, thyroid, parathyroid, and others, causing tissue damage and ultimately organ dysfunction and failure. Iron accumulates in the body either as a result of thalassaemia itself, or due to blood transfusion therapy.Paradoxically, excess gastrointestinal iron absorption persists despite massive increases in total body iron load. Most clinical manifestations of iron loading do not appear until the second decade of life in patients with inadequate chelation (8).

In recent years, with significant increase in the lifespan of patients with β-thalassemia major, several authors reported a high incidence of endocrine abnormalities in children, adolescents and young adults suffering from thalassemia major. However the incidence of the various endocrinopathies changes among different series of the patients due to a mixture of reasons other than iron overloads (9).

The combination of transfusion and chelation therapy has dramatically extended the life expectancy of thalassemic patients who can now survive into their fourth and fifth decades of life. On the other hand, frequent blood transfusion in turn can lead to iron overload which may result in hypogonadism, diabetes mellitus, hypothyroidism, hypoparathyroidism and other endocrine abnormalities (10).

Hypothyroidism is one of the most frequent complications observed in patients suffering from thalassemia. Usually they appear in the second decade of life. The condition is uncommon in optimally treated patients but it may occur in severely anemic and/or iron overloaded patients (11).

Decreased thyroid hormone alter erythropoiesis, and consequently aggravates anemia, also it affects cardiac functions causing left ventricular disfunction, cardiac failure and pericardial effusion. The patient's presentation may be asymptomatic, mild to overt hypothyroidism (12).

Objectives and aim

Various endocrine endocrinopathies including those of thyroid gland have became one of the most important challenges that causes co-morbidities and handicaps_thalassemia patients' life. In this study, we tried to assess the prevalence and types of thyroid dysfunction among thalassemia patients on the background of recent advances in treatment of these patients including various chelation and transfusion regimens which lead to dramatic increase in their life spans. We are aiming for assessment of the thyroid function in the patient withß-thalassemia major and

intermedia, for early diagnosis and treatment of hypothyroidism caused by thalassemia.

Patients and methods

This cross sectional study was conducted on 50 patients (24 males and 26 females) attending the thalassemia clinic belonging to hematology unite of internal medicine department (Kasr El-Aini) together with the hematology clinic of children's hospital (Abou el Reesh), Faculty of medicine, Cairo University.these patients were diagnosed as beta- thalassaemia major or intermedia, with age range 15 – 37 years (Mean 21.4±5.8 years). Patient were subjected to full history taking including transfusional and chelation history, clinical examination, performing complete blood count, measuring serum ALT (Alanine transaminase) and AST (Aspartate transaminase), measuring serum ferritin, and most importantly, thyroid profile evaluation by measuring FT3(free triiodo-thyronine), FT4(free thyroxine) and TSH (thyroid stimulating hormone) using Immulite analyzer by chemiluminescent immunometric assay.

Results

Normal thyroid hormone values were found in 38 (76%) of the studied cases, while the rest 12(24%) cases were diagnosed as primary hypothyroidism (increased serum TSH) as the following: One case (case number17) had biochemical overt hypothyroidism (low FT4 and/or FT3, increased TSH levels) which represents 2% of the patients, and 11 patients (cases number 1,2,3,7,16,26,33,34,35,36 and 38) had subclinical hypothyroidism (normal FT4, FT3, increased TSH levels), these represent 22% of the patients. No cases of central hypothyroidism (low serum thyroid hormone concentrations associated with inappropriately low serum TSH) nor hyperthyroid were found among our cases (fig. 1 and tables 1 and 2). The Patients were divided into 2 groups according to Serum ferritin level into a well chelated group Consisting of 27 patients with S.ferritin <2000 ng/ml. And a poorly chelated group Consisting of 23 patients with S.ferritin >2000 ng/ml. all patients received a chelation therapy, where 25 (50%) received parentral chelator (deferoxamine), while 25 were maintained on oral chelators in the form of

Figure 1: The incidence of hypothyroidism

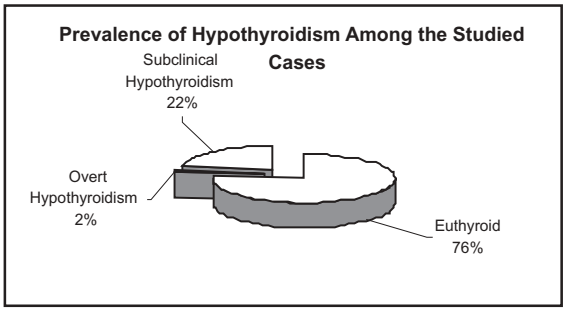


Table 1: Frequency Distribution of the Studied Cases According to the Thyroid Status (n=50):

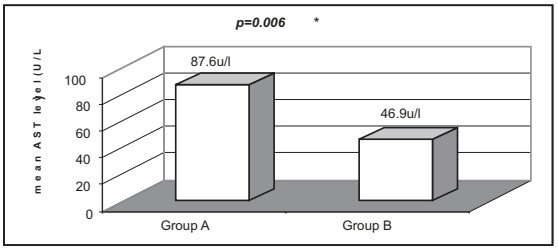
	Number	Percentage (%)
Euthyroid state	38	76
Primary Hypothyroidism:	12	24
Overt laboratory hypothyroidisim	1	2
Subclinical hypothyroidism	11	22
Total	50	100

Table 2: The Thyroid Profile of Hypothyroid Patients

Patient number	TSH (µIU/ml) (0.4-4)	freeT4 (ng/ml) (0.8-1.8)	freeT3 (pg/ml) (2 -4.4)
1	4.5	0.9	3.3
2	4.5	0.98	3.2
3	4.9	0.95	3.9
11	2.2	1	2.3
16	4.1	1.2	3.3
26	4.3	1.2	3.4
33	7.8	1.1	2.6
34	12.8	1	2
35	5.2	1.1	3
36	4.4	0.9	3.1

deferiprone in 18 patients (36%) and deferasirox in 7 patients (14%). Ten patients (37.2 percent) of well chelated group were on deferoxamine , 13 patients (48.2 percent) were on deferiprone and four patients (14.8 percent) where on deferasirox. On the other hand 15 patients (65.2 percent of poorly chelated patients) were on deferoxamine, while 5 patients (21.7 percent) were on deferiprone and 3 patients (13.1 percent) were on deferasirox. A weak positive correlation was found between TSH level and AST *(r=0.28, P<0.05*),and accordingly, mean AST levels were also found to be higher in hypothyroid patients in comparison to euthyroid patients (mean AST of hypothyroid patients: 87.583±70.760, mean AST of euthyroid patients: 46.855±29.731, p=0.006) (Fig. 2).

Figure 2: Comparison of Mean AST (IU/L) of the hypothyroid patients (Group A) and the euthyroid (Group B).



No statistically significant correlation was found between thyroid functions and status and each of the following parameters: anthropometric measures, age, hemoglobin level, serum ferritin, frequency of blood transfusion, and various chelator types. Furthermore, it is worth mentioning that there were higher percentage of hypothyroidism among patients on deferoxamine treatment, although the difference did not reach the significant level (p=0.4).

Discussion

In our study, we are trying to evaluate the thyroid function in beta-thalassemia patients after recent advances in thalassemia field that had occured over the last decade. In addition, we are trying to remove confliction in reported results considering the prevalence of thyroid dysfunction in ß-thalassemic patients. Results varies widely from 10% up to 60%, with the ranging of overt hypothyroidisim from 0% up to 20% of patients from different series. This discrepancy may be attributed to many factors, namely, the compliance to treatment of thalassemia, the availability of this treatment, and the different national origin of the patients. (8, 13-14). Thyroid dysfunction is analyzed among the thalassemia patients in this study according to the following: ***Prevalence of thyroid dysfunction:*** In our study, Normal thyroid hormone values were found in 38 (76%) of the studied cases, while the rest 12(24%) cases were diagnosed as primary hypothyroidism (increased serum TSH) as the following: One case (2%) had biochemical overt hypothyroidism , and 11 patients (22%) had subclinical hypothyroidism, with no cases of central hypothyroidism nor hyperthyroid were found among our cases. However, in a study made by Zevras and collegues (14) who estimated the prevalence of thyroid dysfunction in 200 patients with beta-thalassemia major (100 males and 100 females with age range between 11 and 43 years). They found that the prevalence of subclinical hypothyroidsm was 12 percent while overt hypothyroidism was eight percent with no case of central hypothyroidism was observed. Further, a longitudinal study was conducted by Filosa et al. (15) found that a slow worsening of thyroid function in 25% of the patients with thalassemia and only 2 of them developed overt hypothyroidism. In a study made by Grundy et al. (16), Primary hypothyroidism was detected in two patients (11%) out of the 18 patients studied. Although they were found to be clinically euthyroid (16).

Age: No significant difference in mean age between the hypothyroid and the euthyroid patients and no correlation between age and thyroid profile *(p>0.05)*, likewise, the anthropometric measures was statistically insignificant *(p>0.05)*. Jain and colleagues (17)observed also

that thyroid dysfunction was not related to age. conversely, Filosa et al. (15) reported worsening of thyroid functions with age in their study conducted among 36 patients with thalassemia major who completed a 12 year-period of follow-up and found that 25% shows worsening in the degree of thyroid dysfunction. The prevalence of overt hypothyroidism had risen from 8.4% to be 13.9%. No cases of secondary hypothyroidism were observed (15).

Blood transfusion: The difference in the frequency of blood transfusion between hypothyroid patients and euthyroid patients was not statistically significant (P = 0.2). These result agree with a study which concluded that thyroid dysfunction could not be correlated with amount of blood transfusion. On the contrary, Mehrvar and colleagues (18) denoted a negative effect of blood transfusion among thalassemia patients regarding to endocrine abnormalities, which was explained by the negative effect of iron accumulation in tissues and hemosiderosis resulting from excessive repeated transfusions *Hemoglobin levels:* Although chronic hypoxia have been proposed to play a role in the development of thyroid impairment in thalassemic patients (19). There was no significant difference in mean Hb level between euthyroid and hypothyroid patients in our present study. This agree with Filosa et al., (15) who did not found a correlation between blood transfusion and pretransfusion Hb levels and worsening of thyroid function.

Ferritin: There was no statically significant different in serum ferritin between the hypothyroid patients and the euthyroid patients as regard to serum ferritin levels, it was found that it was not statistically significant. This agrees with Zervas et al., (14) and Shamshirsaz et al., (2003) (10) who reported no significant difference in mean serum ferritin between hypothyroid patients and euthyroid ones.

Chelation : Comparing thyroid hormonal profile between well & poorly chelated patients, we found that there is no significant statistical difference regarding thyroid hormones, but serum TSH level was higher in poorly chelated (3.1 μIU/ml) than in well chelated patients(2.5 μIU/ml) yet not reaching a significant difference *(p=0.3)* . similar observations was also noticed by other investigators (14-15, 19). The prevalence of hypothyroidism was 14.8 % in well chelated patients but it reaches 34.8% in patients poorly chelated but this difference was not statistically significant. Similar results was found by another study which found high prevalence of endocrine abnormality in their studies among thalassemic patients with higher serum ferritin levels and they demonstrated that these abnormalities were related to iron overload.

Chelator types: Regarding to the type of chelator, the prevalence of hypothyroidism was 32% in patients on deferoxamine while it reaches 16.7% in patients receiving deferiprone as a chelator and it was 14.3% in deferasirox patients, Although the percentage of hypothyroidism was higher in patients on deferoxamine but this difference did not reach the significant level (p=0.4). Gamberini et al., (20) denote that the incidences of hypothyroidism, DM and hypoparathyroidism were not significantly different in 18 patients on long term treatment with deferiprone (DPO) compared with 64 patients continuously treated with DFO, from 1995 to 2007. (20). A study made by Farmaki and colleagues (21) showed an improvement in thyroid profile and a reversal of hypothyroidism in thalassaemia patients with intensive combined chelation using deferioxamine and deferiprone.

AST elevation and the impaired thyroid function patients: As regard to ,liver functions; a weak positive correlation is found in our study between TSH and AST (r=0.28, P<0.05) . Gathwala et al., (19) found no significant correlation between serum TSH level and iron overload, transfusion frequency, transaminases, serum bilirubin level among euthyroid and hypothyroid thalassemia patients. Subsequent to the positive correlation between TSH and AST in our study, mean AST levels were also higher in hypothyroid patients in comparison

to euthyroid patients (mean AST of hypothyroid patients: 87.583±70.760, mean AST of euthyroid patients: 46.855±29.731, p=0.006). This AST elevation may be explained by the associated iron overload in the liver. A study made by Maggiolini et al., (22) denotes that haepatic haemosiderosis due to iron overload seems to influence hormonal (FT3 and FT4) peripheral metabolism, However, Landau et al., (23) and Magro et al., (24) reported significant correlation between thyroid and liver function tests in the form of a negative correlation between ALT and FT4, and GGT and T3, but Mengreli et al., (25) found higher T3 levels in patients with liver dysfunction. On the contrary, other studies showed no correlation between transaminases and thyroid dysfunction such as Gathwala et al., (19) and Jain et al., (17).

Conclusion

1)Primary hypothyroidism was found to be prevalent among thalassemia patients mostly in the form of sublinical hypothyroidism. Overt laboratory hypothyroidism was also reported with no clinical signs could be detected. No other forms of thyroid dysfunction was detected. In the light of the previous data, regular follow up and screening for thyroid dysfunction in â-thalassemic major patients is mandatory for early detection, diagnosis and treatment of primary hypothyroidism. 2)Although thyroid dysfunction could be related to the increase in life span of patients, iron overload, chronic hypoxia and chronic sequel of the thalassemia disease; but our study found that none of these factors are statistically related to thyroid dysfunction among patients .3) Statistically, various chelation types appeared to be of the same effect concerning prevelance of thyroid dysfunctions . but it is worth mentioning that there was higher percentage of hypothyroidism among patients on deferoxamine treatment although the difference did not reach the significant level. This could be explained by the weak compliance for deferrioxamine treatment due to its parentral route of administration 4)The elevated AST levels in the impaired thyroid function patients could be explained by the associated iron overload in the liver.

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HEALTH RISKY BEHAVIOR FOR ADOLESCENTS 2009

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Abstract

Aim: The purpose of Youth Risk Behavior Surveillance System among adolescents was to monitor six categories of priority health risk behaviors among youth and young adults. Two of these categories were the participation of adolescents in physical activity and overweight and obesity.

Methodology: Sample size of 3200 students aged 15-18 years was selected in 12 districts of the country and the Municipality of Tirana. The instrument of the survey was a standardized questionnaire, adapted from CDC.

Results: 37.7% of students did not perform any physical activity during the week, while 36.8% reported to exercise for 30 minutes without sweating 1-2 days/ week. 23% were involved in physical activity for 20 minutes which has made them sweat for e"3 days/week (37.5% male, 12.9% female. 71% had participated in a physical education hour and 8% in e"2 hours. On average 36.7% of students watched TV for 3-4 hours/day. 23.7% considered themselves overweight and obese (30.6% female, 13.9% male). 31.4% of students were using different methods to lose weight: 45.4% performed exercises, 48.9% were eating less or eating low calorie food, 18.3% fasted, 2.7% used pills, powder or liquid dietary non prescribed by a doctor and 3.7% vomited or used laxative.

Conclusions: There is need for active promotion on the effects of physical activity on health, obesity and overweight, efficient health education, and greater focus of health education in school curricula, involvement of health and school professionals in promotional campaigns related to youth participation in different physical activities and healthy nutrition of youth.

Key words: Physical activity, overweight, adolescent, school

Introduction

Adolescents such as those of age 10 - 19 years old are meant to be always as a healthy group of the society. Although many adolescents die when they are young as a result of accidents, self suicides, from complications of their pregnancy, violence or other disease that might be treatable or preventable. Except this kind of healthy issues, many serious illnesses in a growing age have their roots from adolescent years. For example: smoking behaviors, alcohol addiction, overweight and obesity, physical activity, unhealthy nutrition, and sexually transmitted diseases lead to illness or premature death in adulthood. So, overweight and obesity, as well as participation in physical activity are factors that affect the health of adolescents.

Overweight and obesity in childhood and adolescence are emerging rapidly as a global epidemic with profound consequences on public health. Various studies have found an increase in the prevalence of overweight among children and adolescents (1-2). This has been more evident in the U.S.A but also in various European countries. Overweight and obesity acquired during childhood and adolescence might continue even during growth at adult (3), as well as to increase the risk later in life for different chronic diseases: coronary heart disease, diabetes, some cancers (4), gall bladder disease and joint osteoarthritis legs. In adolescence obesity is associated with hyperlipidemia, hypertension, disorders of the level of glucose, as well as psychological and social consequences that are unsuitable to manage.

Regular participation of young people in physical activity is very important. As a result it benefits health issues and reduces the risk of developing several chronic diseases including cardiovascular illnesses, hypertension, overweight and obesity, osteoporosis, diabetes and some cancers. The participation in physical activity is also associated with psychological side of young people by improving the symptoms of anxiety or their depression. Also the participation in these activities help young people in the adaption of other healthy behaviors, such as not smoking of tobacco, alcohol or other drugs (5).

Study of risk behaviors among high school youth (YRBS), which was conducted for the second time in our country in 2009, monitors the risky behaviors for the health of adolescents, which are the main contributors to the causes of death, permanent unskillful nature and the social problems among youth in Albania as well as in other European countries and the USA (6-7). Among these risky behaviors included being overweight, obesity and physical activity to adolescents (8). Monitoring of risk factors among adolescents makes it possible to evaluate the success of the strategies and the necessary corrections in the future strategy (9).

Purpose of the study

Systematic surveillance of health risk behavior among young people aged 15-18 years aimed to: determine the perceived prevalence of obesity and overweight in adolescents, the prevalence of their participation in physical activities, to determine the progress of them in time, collection of data at national and local level.

Methods

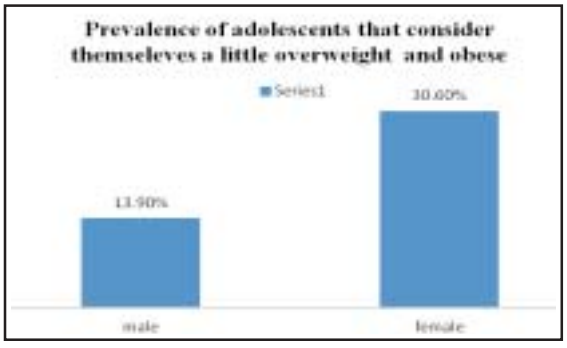
This study is nationally representative survey where the objects of the study were public high school students: general high school and professional school (class X-XII) in the age group 15 - 18 years old. The sample size of the study was about 3200 students. We applied a stratified selection groups. Selection of young people has been guided by the principle of accurate representation of total mass of young people in secondary education. We did a randomized selection and weighted according to the number of students in each of the 12 districts of the country and in the Municipality of Tirana, which was treated as a separate unit. In each region were selected at random away 3 schools and these schools were selected at random one class for each grade (2-4). As the instrument of the survey we used a standardized questionnaire. The questionnaire was self-administration and contained logical questions in order to provide information on a range of

demographic variables as well as related health risk behaviors. We prepared a document to obtain the consent of participation in the survey which clearly explained the purpose of the questions and the reasons for the study. For the organization of the questionnaires in the survey we based on the expertise and experience of the Centers for Disease Control and Prevention (CDC), USA (10-11). The detailed analysis of the data was made by SPSS program.

Results

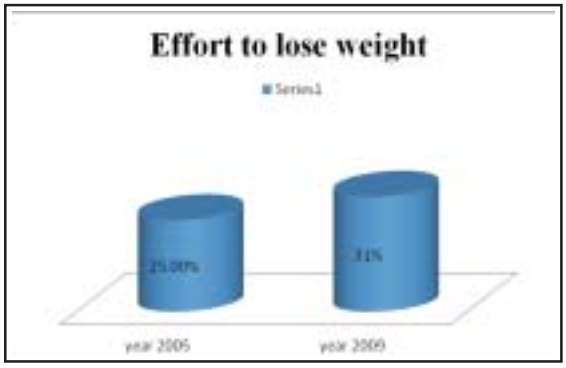
In general from all the students that were involved in the study, only 23.7% have described themselves as slightly overweight and very overweight. This perceived prevalence by adolescents is higher among girls with 30.6% compared to men 13.9% (Graphic 1). If we compare the data from the same study in 2005 this prevalence has risen from 20% to 23.7%. According to the divisions of the classes 10, 11, 12 we have a slight change in the prevalence respectively 23%, 26.1% and 20.7%.

Graphic 1. Percentage of adolescents that consider themselves overweight or obese



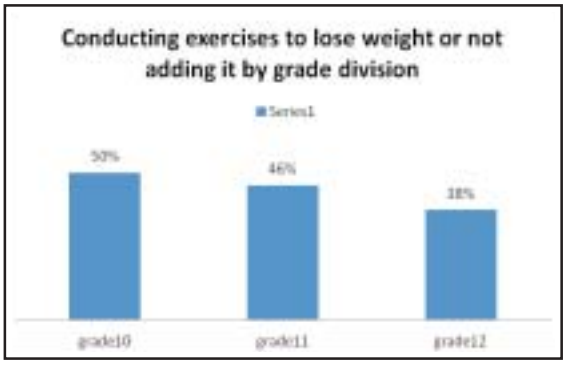
The students made various efforts to lose weight. Among them, 31.4% were trying to lose weight and this prevalence by class divisions is higher in grade 10 and 11 respectively (32% and 33.9%) compared to students in grades 12 where the prevalence was 25%. Attempts to lose weight are more common in girls than boys with respectively 38% and 21.8%. This is probably explained by the fact that girls are more careful for themselves. Also this prevalence has been increased in significantly way compared to the study conducted in 2005 (Graphic 2). Methods that are more used by teenagers to lose weight were practices of different physical exercises and different diets. 45.4% of young people answered that they had made various exercises to fall or not to add weight during the 30 days preceding the survey. This prevalence has risen significantly compared to the results of the same survey of 2005 where the prevalence was 33.6%. There are no developments in the prevalence of these changes between males and females (45% to 45.7%).

Graphic 2. Proportion of students who tried to lose weight through various methods



There is a significant difference of this prevalence between grade 10, 11, and 12 respectively 50.2%, 46% and 37.5% (Graphic 3).

Graphic 3. Proportion of students who exercise to lose weight, by school grade



Methods that use teenagers to lose weight are many. 48.9% of students indicated that they ate less, low calorie or low fat foods, 18.3% of the students had remained sitting without food, 2.7% reported taking dietary pills, powder or various juices without prescription of the doctor, and 3.7% of students had vomited or taken a laxative during the 30 days preceding the survey (Table 1).

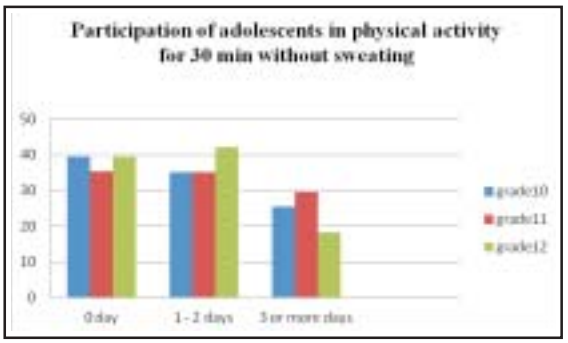
Table 1. *The methods used to lose weight or to keep it*

Methods	Male	Female	Total
Exercise	45%	45.7%	45.4%
Less food or low calorie	41.9%	53.4%	48.9%
Without eating	12.8%	22.1%	18.3%
Pills, powder or dietetic juices	2.8%	2.7%	2.7%
Vomit or getting laxative	3.8%	3.6%	3.7%

The prevalence of students who ate less food, with fewer calories or less fat foods in order to lose weight or not gain weight is significantly higher than the prevalence of the study conducted in 2005, respectively 48.9% versus 30.3%. The girls have higher percentage in effort to lose weight then boys.

The participation of adolescents regularly in physical activities helps them in building and maintaining healthy their bones and muscles, in weight control, in reducing fat and building thin muscle. Among young people there is a low participation in physical activity. Among high school students 37.7% of them have not done any physical activity in a week, while 36.8% have completed a physical activity for 30 minutes without being sweat in 1 - 2 days per week, and 25.6% at 3 or more days of the week (Graphic 4). It is noticed a slight difference between males and females. Boys perform more physical activity during the week than girls. The percentage of students that participate in physical activity during the week was a slightly higher than those in urban areas. According to WHO recommendations young people should do at least 60 minutes of moderate physical activity (that keep them without sweating) every day1.

Graphic 4. Proportion of students who engage in non-sweating physical activity for 30 minutes, by school grade

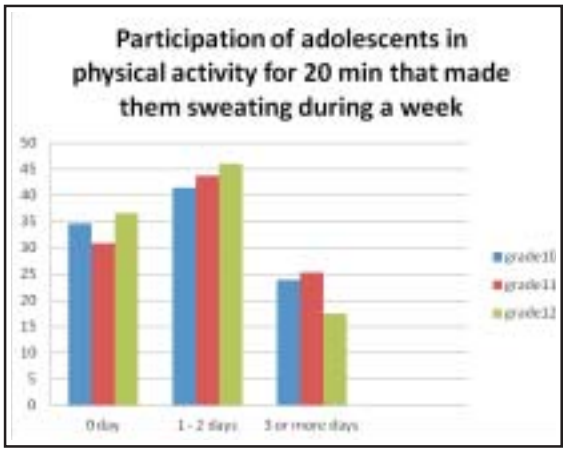


43.5% of young people have done for at least 20 minutes a physical activity that made them sweat or breathe with difficulty in 1 - 2 days a week, and 23% of the students on 3 or more days a week (Graphic 5). There is a big difference in participation on physical activities in 3 or more days a week between male and female respectively 37.5% and 12.9%. Participation of young people in physical activity is great to age 15, 16 years.

The prevalence of participation in vigorous physical activity to strengthen muscles was significantly higher among boys 59% compared with girls 19%. We didn't notice any great difference of this prevalence between grade10, 11 and 12. It is noticed a differences in percentage between students in urban and rural areas with 41% of students in urban areas that are trained to strengthen the muscles compared with 28% of students in rural areas.

Among high school students 16.1% of them are trained to strengthen the muscles in three or more days during the 7 days preceding the survey. This prevalence is higher among males (33.8%) than females 3.7%.

Graphic 5. Proportion of students who engage in sweating physical activity for at least 20 minutes, by school grade



The physical education in school can increase adolescent participation in vigorous physical activity and help them develop their knowledge, cultural background and the skills that they need to be prepared for, in order to be utilized during life. The study revealed that the participation of the students in the hour of physical education during a week of school in one day was 71% and in two or more days was 8%. Among students during physical education hours 60% of them were trained or playing sports more than 20 minutes. Prevalence changes slightly between boys and girls, respectively, 63% and 58%. In the study in questions related to physical activity was observed that the prevalence come decreasing with increasing age. So students of grade 10, 11 perform more physical activity than students in grade 12.

One of the questions in the study was, how many hours the students spend watching television. During a normal school day average 36.7% of high school students have seen three to four hours of television a day. There are no significant changes in prevalence between boys and girls, urban and rural areas. By grade divisions we noted a prevalence of students who see 5 or more hours of television per day about two times greater in grade 10 compared with other students on grade 11 and 12. The prevalence is respectively 15.7% in grade 10 and 7.6% and 8.8% in grades 11 and 12.

Conclusions and Recommendations

This study brings new data in the perceived prevalence of overweight and obesity by adolescents, as well as the prevalence of participation in physical activity among young people in Albania. If we see the trends of this prevalence in years there is an increasing prevalence of obesity and overweight in youth compared with the same study conducted in 2005 from 20% to 23.7%. Also the prevalence of adolescents who have not done any physical activity during a week has risen from 24% in the study of 2005 to 37.7% in the study of 2009. Also the prevalence of different methods that young people use to maintain weight or to lose weight has been increased. Considering the subsequent effects on health that risky behavior have, this study may suggest that overweight, obesity and not taking part in different physical activities or sedentary life, among adolescents can become a public health problem. Overweight and obesity acquired during childhood and adolescence may increase the risk for different chronic diseases later in life. Participation of high school adolescents in physical activity is low as compared to the years it continues to decrease. WHO recommendations regarding physical activity among youth are:

1. Young people should perform at least 60 minutes a day of physical activity from moderate to vigorous physical activity.
2. The major part of daily physical activity should be aerobic.
3. The health benefits are greater if we perform more then 60 minutes of physical activity per day.
4. Vigorous and intense physical activity should be incorporated, including those activities that

strengthen muscles and bones, at least three times a week.

In conclusion, based on data obtained from this study, it is recommended as follows:

• Active promotion on the effects of physical activity, obesity and overweight in health.

• Efficient health education.

• Broader space for health education in the educational curricula.

• Health workers and teachers should carry out awareness campaigns on youth participation in various physical activities as well as on healthy nutrition of youth in our country.

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DIABETIC NEPHROPATHY IN PREGNANT WOMEN WITH TYPE 1 DIABETES MELLITUS

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Abstract

Introduction: Diabetic nephropathy is associated with an increased perinatal morbidity during pregnancy. The aim of this study was to describe pregnancy outcome in type 1 diabetic women with normoalbuminuria, microalbuminuria or diabetic nephropathy after implementation of an intensified antihypertensive therapeutic strategy.

Methods: In our prospective study were enrolled 80 pregnant type 1 diabetic women. Antihypertensive therapy, mainly methyldopa, was given to obtain blood pressure < 135/85 mmHg and urinary albumin excretion < 300 mg/24 h. Blood pressure and HbA_1C were recorded during pregnancy. The pregnancy outcome was compared with recently published studies of pregnant women with microalbuminuria or diabetic nephropathy.

Results: Antihypertensive therapy was given in 9 of 54 women with normoalbuminuria, 8 of 18 women with microalbuminuria, and all 8 women with diabetic nephropathy. Mean systolic blood pressure during pregnancy was 124 mmHg (range 105-151), 125 mmHg (119-138), and 138 mmHg (113-147) in women with normoalbuminuria, microalbuminuria, and diabetic nephropathy, respectively ($P = 0.0095$). No differences in mean diastolic blood pressure or HbA_1C were detected between the groups. No women with microalbuminuria developed preeclampsia. The frequency of preterm delivery was 22% in women with normoalbuminuria and microalbuminuria, in contrast to 75% in women with diabetic nephropathy ($P < 0.01$) where the median gestational age was 254 days .

Conclusions: With intensified antihypertensive therapy and strict metabolic control, comparable pregnancy outcome was seen in type 1 diabetic women with microalbuminuria and normoalbuminuria. Diabetic nephropathy was associated with more adverse pregnancy outcome, compared to other studies.

Keywords: **diabetic nephropathy, microalbuminuria, preeclampsia.**

Introduction

Microalbuminuria (urinary albumin excretion in the range of 30–300 mg/24 h) is an early manifestation of diabetic kidney disease. It is associated with slightly elevated blood pressure (BP) within normal range and subclinical edema due to universal vascular leakage of albumin, and it predicts overt diabetic nephropathy with persistent proteinuria and hypertension (1-3).

The most important problem in the pregnancy complicated by type 1 diabetes is increased perinatal morbidity associated with preterm delivery. Up to one-third of infants of mothers with type 1 diabetes are delivered preterm (4-6), while the prevalence of preeclampsia characterized by hypertension, proteinuria, and edema is 10–20%. Diabetic nephropathy (urinary albumin excretion >300 mg/24 h) presents at conception is a major contributor to increased perinatal morbidity and mortality (7-8). Diabetic women with high early pregnancy proteinuria of 190–499 mg/day have been reported to have an increased risk of developing preeclampsia, similar to that in women with diabetic nephropathy (9-11).

The aim of this study was to determine the influence of microalbuminuria on fetal outcome and maternal complications in pregnant women with type 1 diabetes.

Methods

In our study were enrolled 80 women with type 1 diabetes before gestation who were admitted to the Department of Obstetrical Gynecology at American Hospital, "Hygeia" Hospital, Diagnostic Center "Ikeda-Euromedica"and Diagnostic Center "Med.al" before 17 weeks of gestation with a living fetus. Women who had miscarriages (d"22 weeks of gestation) were excluded. The cases were analyzed for urinary albumin excretion, BP, HbA_{1c} ,that were measured by various methods in the respective centers. The women were categorized according to their level of urinary albumin excretion, calculated as geometric mean of two to three measurements. Normal urinary albumin excretion was defined as <30 mg/24 h, microalbuminuria was defined as urinary albumin excretion of 30–300 mg/24 h, and diabetic nephropathy was defined as urinary albumin excretion >300 mg/24h (12-13). Data regarding kidney function and BP status at baseline are summarized as follows:

Normal urinary albumin excretion

In 54 women without kidney involvement, geometric mean urinary albumin excretion was 7 mg/24 h (range 1–27). Two of them (2,5%) were treated with antihypertensive drugs before pregnancy (ACE inhibitors, beta blockers, and/or diuretics).

Microalbuminuria

In 18 women with microalbuminuria, geometric mean urinary albumin excretion was 65 mg/24 h (range 14–270). Five of them were normotensive, because they were diagnosed with hypertension and treated with ACE inhibitors before pregnancy.

Diabetic nephropathy

In 8 women with diabetic nephropathy, geometric mean urinary albumin excretion was 1,115 mg/24 h (range 458–5,480). Two women had nephrotic proteinuria >3 g/24 h; the mean serum creatinine was 87 ìmol/l (range 58–165), and in the first trimester, three women had a creatinine clearance <1.13 ml/s. Five women were treated with antihypertensive drugs (three with ACE inhibitors and three with beta blockers, possibly in combination with diuretics), because they were diagnosed with hypertension before pregnancy. The women were classified according to the White classification, which is traditionally used in obstetrics to grade the severity and duration of diabetes. White class B was defined as onset of type 1 diabetes after 19 years of age and duration of diabetes <10 years. White class C was defined as onset of type 1 diabetes between 10 and 19 years of age or duration of diabetes 10–19 years. White class D was defined as onset of type 1 diabetes before 10 years of age or duration of diabetes e"20 years or presence of retinopathy. White class R was defined as presence of proliferative retinopathy, and White

class F was defined as presence of diabetic nephropathy (14). A woman was categorized as a smoker if she smoked e"1 cigarette per day. The women were asked to perform home blood glucose measurements at least four times daily during their pregnancy and to adjust insulin doses accordingly in order to maintain preprandial blood glucose levels between 3 and 6 mmol/l. They visited the obstetric clinics every 1 or 2 weeks during pregnancy. Labor was routinely induced at 37–40 weeks of gestation based on individual evaluation. Single measurements of 24-h urinary albumin excretion, HbA_{1c}, and office BP were performed at least five times throughout the pregnancy (weeks 10, 14, 20, 28, and 34). Urine samples were analyzed for albumin by enzyme-linked immunosorbent assay (15) or by a turbidimetric method using the same antibodies and buffers. HbA_{1c} was analyzed by high-performance liquid chromatography (16) or by antibody immunoassay (normal range 4.1–6.4%). Office BP was measured in a sitting position with the arm at heart level after 5–10 min rest.

The diagnosis of preeclampsia in women with normal urinary albumin excretion or microalbuminuria was based on the presence of office BP >140/90 mmHg (three measurements) accompanied by proteinuria >0.3 g/24 h (two urine samples) later than 20 weeks of gestation (proteinuria of 0.3 g/24 h is equivalent to a urinary albumin excretion of 190 mg/24 h). The diagnosis of preeclampsia in women with diabetic nephropathy was based on the same findings as well as a sudden increase of e"15% in systolic or diastolic BP (11). Pregnancy-induced hypertension without proteinuria was defined as the development of BP >140/90 mmHg (three measurements) later than 20 weeks of gestation in women who were previously normotensive and proteinuria <0.3 g/24 h. Antihypertensive treatment with methyldopa was initiated due to preeclampsia (n = 13) or if diastolic BP was higher than 95 mmHg without proteinuria (n = 11) or if proteinuria exceeded 3 g/24 h (n = 2) in the absence of hypertension. None of the women with normal urinary albumin excretion or microalbuminuria required antihypertensive treatment early in pregnancy (<20 weeks of gestation). In addition to insulin and hypertensive drugs, four women were taking levothyroxine for Hashimoto Thyroiditis, five were taking antidepressive drugs and one was taking an antiepileptic drug during the pregnancy. Preterm delivery (<37 weeks of gestation completed) included spontaneous delivery and delivery based on obstetric indications such as uncontrolled hypertension, severe symptoms of preeclampsia, or macrosomia. Small for gestational age was defined as <10th centile for gestational age. Perinatal mortality was defined as fetal death later than 22 weeks of gestation or within 1 week after delivery. Major congenital malformations were considered those responsible for death, those causing a significant future disability, or those requiring major surgery for correction (17). During the study period, no fetuses with congenital malformations were aborted as late abortions.

Statistical analysis

Normally distributed continuous variables are given as means ± SD, and urinary albumin excretion is given as geometric mean and range. ÷² trend test for categorical data and one-way analysis of variance linear trend test (regression) for continuous variables were applied to compare groups. Multivariate logistic regression analysis was applied to identify variables independently associated with development of preterm delivery and preeclampsia. Category of urinary albumin excretion and tertiles for HbA_{1c} (d"7, 7.1, 7.9, and e"8%) were applied as independent variables in the logistic regression analysis. Probability value <0.05 (two-tailed) was considered significant.

Results

A total of 54 women (67.5%) had normal urinary albumin excretion, 18 (22.5%) had microalbuminuria, and 8 (10%) had diabetic nephropathy at baseline (Table 1). There was a

trend toward longer duration of diabetes and higher BMI, HbA_{1c}, and BP with increasing category of urinary albumin excretion. Antihypertensive therapy was given in 9 of 54 women with normoalbuminuria, 8 of 18 women with microalbuminuria, and all 8 women with diabetic nephropathy. Mean systolic blood pressure during pregnancy was 124 mmHg (range 105-151), 125 mmHg (119-138), and 138 mmHg (113-147) in women with normoalbuminuria, microalbuminuria, and diabetic nephropathy, respectively (P = 0.0095). No differences in mean diastolic blood pressure or HbA_1C were detected between the groups. No women with microalbuminuria developed preeclampsia. The frequency of preterm delivery was 22% in women with normoalbuminuria and microalbuminuria, in contrast to 75% in women with diabetic nephropathy (P < 0.01) where the median gestational age was 254 days .When excluding the group with diabetic nephropathy from analysis, women with microalbuminuria still had a higher prevalence of preterm delivery compared with women with normal urinary albumin excretion (*P* < 0.05). The increased prevalence of preterm delivery was mainly due to the higher prevalence of preeclampsia in women with microalbuminuria or diabetic nephropathy. A total of 24% of the women with microalbuminuria and 60% of the women with diabetic nephropathy delivered preterm due to preeclampsia. Preterm delivery due to other causes (spontaneous or for obstetrical reasons) was comparable in the three groups.

Table 1. Baseline data on 80 pregnant woman with type 1 diabetes and normal urinary albumin excretion, microalbuminuria and nephropathy.

	Normal urinary albumin excretion	Microalbuminuria	Nephropathy	*P* value
N	54	18	8	—
Age (years)	28 ± 5	30 ± 3	30 ± 4	NS
Duration of diabetes (years)	10 ± 6	17 ± 4	18 ± 5	<0.01
BMI (kg/m^2)	23 ± 4	25 ± 6	26 ± 4	<0.05
Urinary albumin excretion (mg/24 h)	7 (1–26)	72 (18–280)	1,118 (470–5,540)	ND
HbA_{1c} at 2–6 weeks (%)	7.2 ± 1.4	8.0 ± 1.1	9.0 ± 1.4	<0.001
Early systolic BP (mmHg)	124 ± 13	125 ± 12	138 ± 11	<0.001
Early diastolic BP (mmHg)	67 ± 9	70 ± 7	79 ± 7	<0.001
White classification				
B + C	30 (55.5)	7 (39.9)	0	ND
D + R	24 (45.5)	11 (61.1)	0	ND
F	0	0	8 (100)	ND
Nullipara	29 (55.5%)	9 (50%)	4 (50%)	NS
Smokers	14 (25.9%)	4 (33.3%)	4 (50%)	NS

Data are means ± SD, mean (range), or *n* (%). The statistics applied are $\div^2$ trend test when comparing categorical data and linear trend test (regression) for one-way analysis of variance when comparing continuous data.

ND: not done; NS: not significant.

Increased prevalence of intrauterine growth retardation was seen in women with diabetic nephropathy but not in women with microalbuminuria (Table 2). Diabetic nephropathy was also associated with increased prevalence of jaundice requiring treatment, and there was a tendency toward a higher proportion of development of tachypnea requiring assisted ventilation. Perinatal mortality and major congenital malformations were comparable in the

three groups. Using multivariate logistic regression analysis, the baseline variables of urinary albumin excretion, systolic BP, HbA_{1c}, White classification, age, BMI, parity, and smoking were tested as predictors of preterm delivery. Increased category of urinary albumin excretion ($P < 0.01$) and high HbA_{1c} at 2–6 weeks of gestation ($P < 0.05$) were independently associated with preterm delivery.

Table 2. Pregnancy course and outcome in 80 women with type 1 diabetes and normal urinary albumin excretion, microalbuminuria and nephropathy

	Normal urinary albumin excretion	Microalbuminuria	Nephropathy	*P* value
n	54	18	8	—
HbA_{1c}, weeks 10–34 (%)	6.4 ± 0.8	6.8 ± 0.5	7.4 ± 0.7	<0.01
Preeclampsia	4 (7.4)	7 (38.8)	(62.5)	<0.001
Pregnancy-induced hypertension without proteinuria	2 (3.7)	1 (5.5)	0	NS
Proteinuria >3 g/24 h	0	5(27.7)	5 (62.5)	<0.001
Preterm delivery before week 37	2(3.6)	2(11.1)	4 (50)	<0.001
Preterm delivery before week 34	0	1 (5.5)	2 (25)	<0.001
Perinatal mortality	0	1 (5.5)	0	NS
Singleton small-for-gestational-age infants (<10%)	1 (1.8)	1 (5.5)	3 (37.5)	<0.001
Birth weight, singletons (g)	3,478 ±595	3,124 ± 678	2,185 ± 1042	<0.001
Major congenital malformations	1 (1.8)	1 (5.5)	1 (12.5)	NS
Tachypnea continuous positive pressure <1 h, singletons	8 (14.8)	3 (16.5)	2 (25)	NS
Jaundice requiring treatment, singletons	8 (15)	1 (5.5)	5 (62.5)	<0.01

Data are n (%) or means ± SD.
The statistics applied are $\div^2$ trend test when comparing categorical data and linear trend test (regression) for one-way analysis of variance when comparing continuous data.
NS: not significant

Discussion

In our study, the presence of microalbuminuria during the pregnancy and higher HbA_{1c} at 2–6 weeks of gestation has been associated with increased risk of preterm delivery in women with type 1 diabetes mellitus. The substantially increased prevalence of preterm delivery with the increasing degree of albuminuria was caused by higher prevalence of preeclampsia.

Our findings are in accordance with Combs et al. (11), who reported an increased prevalence of preeclampsia and preterm delivery in women with early pregnancy proteinuria of 190–499 mg/24 h. A substantial number of the women with microalbuminuria increased their protein excretion to the nephrotic range during pregnancy. This is in accordance with Biesenbach et al. (18), who

found that nephrotic proteinuria developed in 4 of 12 women with microalbuminuria during pregnancy. One might speculate whether antihypertensive treatment during pregnancy should be indicated with increasing albumin excretion. We chose to initiate antihypertensive treatment in normotensive women with proteinuria exceeding 3 g/24 h during pregnancy. After delivery, the albumin excretion has been shown to return to prepregnancy levels (12,16). The prevalence of preterm delivery in our study was comparable to the literature (6), although some authors have reported a higher prevalence of women delivering at term (5-6). The association between high levels of HbA_{1c} and development of preeclampsia has been described earlier in type 1 diabetes (9,19). In our study we have noticed a correlation between elevated HbA_{1c} at 2–6 weeks of gestation and increased prevalence of preterm delivery. The presence of hypertension is of importance for the prediction of preeclampsia (18). In women with microalbuminuria or diabetic nephropathy, development of preeclampsia was the most important single cause of preterm delivery. In women with normal urinary albumin excretion, we also found a surprisingly high prevalence of preterm delivery associated with poor metabolic control. Treatment with ACE inhibitors before pregnancy along with tight metabolic control in women with diabetic nephropathy, resulting in urinary albumin excretion <500 mg/24 h, has been reported to have a prolonged protective effect on maternal renal function and results in a favorable maternal-fetal outcome without development of preeclampsia. Unfortunately, we are unable to support this report, because in our study all women with microalbuminuria or diabetic nephropathy treated with ACE inhibitors before pregnancy demonstrated progression of proteinuria during pregnancy.

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DIABETES MANAGEMENT: A LITERATURE REVIEW

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Abstract

Aim: Diabetes Mellitus (DM) is becoming of increasing concern worldwide in terms of individual and societal grounds. Half of diabetics don't know they have diabetes and about 4 out of 5 diabetics live in low and middle income countries. DM is boosted by the increase in overweight, obesity and physical inactivity. Our aim was to review the latest trends in diabetes control and management in order to assess which one could be suitable to control this disease in Albania.

Methods: We reviewed the latest documents concerning management of DM. We searched PubMed and the databases of major organizations dealing with DM such as World Health Organization, International Diabetes Federation and American Diabetes Association. Only the relevant articles dealing with DM management and barriers to adhere to guidelines were reviewed.

Results: DM control and management means more than just keeping the plasma glucose level under control. The successful management and control of DM requires a multidisciplinary approach and, besides pharmacotherapy, the patient education regarding self-management behaviors is essential in this regard. In an era of rapid technological development, new approaches toward patient education are encouraged.

Conclusion: The prevention of DM is feasible. In middle income countries patient education can be beneficiary in terms of individual and societal costs reduction. Text messaging or other innovative cheap solutions could work well in Albania, where the prices of these services have decreased substantially.

Keywords: diabetes, management, medication adherence, patient education.

Introduction – Diabetes burden: quick facts and figures

According to the World Health Organization (WHO) there are about 350 million people suffering from diabetes mellitus (DM) and by 2030, diabetes will become the seventh leading cause of death worldwide with diabetes deaths expected to raise by 50% during the next 10 years. (1). The number of diabetic persons is increasing in every country, 4 out of 5 people with diabetes live in low and middle income countries and half of diabetics don't know they suffer from this disease (2). This global epidemic could be largely attributed to the rapid increase in the rates of overweight, obesity and physical inactivity (1).

There are described two common types of diabetes mellitus: type 1, type 2 and gestational diabetes mellitus, triggered by a complex interaction between environmental and genetic factors and sharing hyperglycemia as a common characteristic (3). Type 1 diabetes results from the complete or near-complete lack of insulin production whereas type 2 diabetes results from insulin resistance, impaired insulin secretion and increased glucose production which could take place in various degrees (3). Gestational diabetes occurs in nearly 4% of pregnancies in United States and, even though in most cases the glucose tolerance is back to normal, these women face an increased risk of developing DM later in life (4). DM is diagnosed by measuring the plasma glucose. The American Diabetes Association suggested the following thresholds of fasting plasma glucose (FPG) for distinguishing between normal, pre-diabetic and diabetic state: up to 100 mg/dL-normal glucose tolerance; 100-125 mg/dL-impaired glucose tolerance (pre-diabetes) and >125 mg/dL-diabetes mellitus, and the following 2-hours plasma glucose (2-h PG) levels: up to 140 mg/dL-normal glucose tolerance; between 140-199 mg/dL- impaired glucose tolerance and more than 200 mg/dL-diabetes mellitus. Type 2 diabetes accounts for 90% of all diabetes cases, but recently its incidence is increasing steadily among children and adolescents (1). Diabetes rate increases with aging, it varies greatly geographically and among different ethnic populations but no significant sex difference is noticed (5).

Health and economic consequences of diabetes

The disorders attributed to DM cause various pathologic changes in multiple organs thus creating a heavy burden in terms of individual health (3) and societal costs (6). Health consequences of diabetes range from acute complications, like diabetic ketoacidosis, to chronic vascular (such as retinopathy, neuropathy, nephropathy, coronary artery disease, peripheral arterial disease, cerebrovascular disease) and chronic non-vascular complications (gastroparesis, increased vulnerability to infections and skin changes) responsible for the diabetes' associated morbidity and mortality (7). DM is the leading cause of blindness, non-traumatic amputation of lower extremities and kidney failure (1). Diabetic individuals were in greater risk for cardiovascular, renal, neurological and ophthalmic diseases as well as other chronic complications and general medical conditions (6).

The societal costs of diabetes are far from being negligible. For example, in 1997 the costs attributable to diabetes in United States were almost 100 billion dollars, counting for direct and indirect costs (6). Almost 14 million hospital days were attributed to diabetes; treatment of uncomplicated diabetes accounted for 13% of all hospitalizations and health care expenditures attributable to diabetes were around 40 billion dollars in 1997. Working days lost due to diabetes were 5 times more among diabetics than non-diabetics and the later ones experienced fewer limited-activity and bed-disability days compared to their diabetic peers. Finally, the total cost for a diabetic person in US in 1997 was 10071 dollars compared to 2669 dollars for a person without diabetes (6). In 2012, nearly 5 million deaths occurred due to diabetes and almost 500 billion USD were spent on diabetes worldwide (2).

Diabetes management

Diabetes is a chronic condition the control of which demands the combining efforts of the patients and a group of specialized care providers. The patient' participation, motivation and enthusiasm are critical for achieving optimal control of the disease. The successful management of diabetes requires more than just controlling the plasma glucose levels. It requires a multidisciplinary approach. (8- 9). Giving the fact that most patients will have developed one or more complications of diabetes at the time they show up at the health care provider and the diagnosis is set, then the case management will focus on two directions:
a) history and physical examination, in order to check for any signs and symptoms of acute hyperglycemia, and b) screening for long-term or chronic complications related to DM. According to the International Diabetes Federation (IDF) the idea behind diabetes management is that, although monitoring and controlling the level of plasma glucose is essential, the optimal management of diabetes requires also the investigation of potential DM complications and their management, accompanied by efforts to modify the risk factors for different diabetes-related conditions. Diabetes care and management might also be dependent on a certain number of other factors such as societal and economic factors. Cultural factors and employment factors are also very important as they relate to life-style, including smoking, drinking, physical activity, the patterns of feeding, stress and a whole range of other activities which could serve as risk factors for triggering diabetes. The recommendation of IDF for a comprehensive management of diabetes mellitus is summarized in Table 1.

Table 1. Management of diabetes mellitus (multidisciplinary team)*

Short-term management of diabetes	
History	Data about weight, family history for DM, history of C-V diseases, smoking, drinking, exercise.
Physical examination	Weight, retinal examination, blood pressure, foot examination, insulin injection sites, peripheral pulse, reflexes checking
Classification of the individual patient	Type 1 DM: onset of disease before age 30; slim body; insulin taking; prone to ketoacidosis and to other autoimmune disorders. Type 2 DM: usually after age 30; obese; may not require insulin since the beginning; might have hypertension, CV disease, and dyslipidemia.
Laboratory assessment	FPG and 2-h PG; screening for conditions related to DM: microalbuminuria, dyslipidemia etc., or cardiac stress testing in high risk CV disease individuals.
Long-term treatment	
Overall goals of the therapy	
Eliminate symptoms related to hyperglycemia	The target level of glycemic control should be set. Provide all the *education* and *pharmacological* treatment necessary to reach and maintain this level
Reduce the long-term vascular complications	
Allow the patients to a normal lifestyle	
The management multi-disciplinary team	
Primary care provider, or diabetologist/endocrinologist	
Diabetes educator (nurse, dietician or pharmacist)	Education topics include: self-monitoring of blood glucose; urine ketone monitoring (type 1 DM); insulin administration; diabetes management during illness; management of hypoglycemia; skin and foot care; management of diabetes before, during and after exercise etc.
Nutritionist	Aims to balance calories' intake with other aspects of DM such as insulin intake, exercise and weight loss. Weight reduction is recommended. Balance of calories intake from different sources: to 35% of calories from fat, up to 65% from carbohydrates and up 35% from proteins. Exercises are beneficial to diabetes control as it lowers plasma glucose, lowers CV diseases risk, reduces blood pressure, and enhances weight loss. ADA recommends 150 minutes of physical activity per week. However, exercise should be performed with caution, as there is risk of hypoglycemia.
Specialist according to the type of complication (neurologist, nephrologist, cardiologist, ophthalmologists etc)	When these complications are present, then the respective specialized care provider will enter into play

* *Adapted from the International Diabetes Federation and American Diabetes Association.*

The International Diabetes Federation recommends the self-monitoring of blood glucose as often as necessary, testing for HbA1c several times per year, education of patients with refreshment once per year, examination of eye and foot once or twice a year, blood pressure measurement, lipid profile once a year and vaccinations against influenza as good approaches toward the ongoing management of diabetes.

Discussion

Diabetes is a slow and hideous disease. A person can live for years with the glycemic dys-regulation without noticing anything. Chronic complications are positively linked to the level and duration of hyperglycemia. They usually appear in the second decade of hyperglycemia and that is why most of patients present with complications at the time of DM diagnosis (10). In these conditions, screening for type 2 DM using the fasting plasma glucose (FPS) test is of imperative importance and could offer a substantial help for relieving individual and societal costs, because: a) the overwhelming majority of individuals with abnormal glucose levels are asymptomatic and unaware of the disorder. In fact, half of diabetics don't know they have it (2); b) evidence suggests that the gap between disease installment and diagnosis is about one decade; c) half of type 2 DM patients have one or more diabetic complications at the time of diagnosis; and, d) early treatment of type 2 DM may favorably change the natural history of this. The American Diabetes Association recommends that all individuals 45 years old or older should be screened every three years and overweight persons with any additional diabetes risk factors should be screened at an earlier age disease (5). However, cultural and ethnic factors could hinder or enhance the adherence to screening or preventive measures, even though these services are universally available. For example, a study found that black population were less likely to utilize the preventive services, less likely to self-monitor their diet compared to white and the level of self-management behaviors was low in all ethnic groups people (11). This points out to the importance of education in diabetes management. Besides pharmacotherapies, patient education is central toward the successful management of diabetes (12 -13). It guarantees not only the maintaining of glycemic control and monitoring of other DM related conditions, but it is imperative for the optimal application of the appropriate pharmacotherapy treatment as well. In this regards, diabetic patient education is an ongoing process, which should reinforced once or twice annually and which could not be completed by a single visit to the doctor or nurse. Different education approaches could be used: individual or group education. There is evidence that individual education is more effective in controlling HbAc1 concentration level compared to group education or usual care approach (14 - 15). Other studies have highlighted the effectiveness of diabetes case management and education in terms of costs saving and clinical outputs, especially for low-income populations (16).

Despite the fact that diabetes mellitus is becoming of increasing concern to the health systems globally and diabetes management guidelines have been circulating since decades from now, the pace of implementation of such guidelines by health care providers has not been the same as the pace of the disease growth. For example, various obstacles to adhere and implement the guidelines have been reported: the doctor's attitude to consider their scientific knowledge as the "golden standard" and to overlook the patient's perceptions can lead to communication gaps and lack of success (17 -18). Moreover, certain beliefs and perceptions about the gravity and seriousness of the disease as well as the reluctance in the willingness of patients to change their lifestyle can contribute toward non adherence as well (15,19). For example, a study reported that only half of DM patients regarded the disease as serious, one third did not understand the disease, three quarters were not clear about symptoms and very few followed instructions on recommended physical activity (15). Another potential barrier toward the

successful management of diabetes could be the fear of hypoglycemia (FoH) among diabetic persons. Hypoglycemia is the most frequent adverse effect resulting from insulin treatment in diabetics, which can occur suddenly with signs and symptoms ranging from sweating to unconsciousness. Tight control of glycosylated hemoglobin (HbA1c) increases by three-folds the number of hypoglycemic events. Because of this fear, diabetic patients may reduce the intake of insulin or can apply other measures to avoid hypoglycemic episodes. This results in poorer control of plasma glucose, thus worse diabetic management, which could be alleviated by blood glucose awareness trainings and cognitive behavioral therapies (20). The fragmentation of the care delivery system could be another barrier toward effective management of diabetes (9).

The management of diabetes should be delivered by multi-disciplinary teams because of the complexity of diabetes control requirements. Evidence has shown that diabetes management programs are able to improve glycemic control and increase foot and retinopathy screening rates (21). Reminding health care providers and patients about diabetes can also improve the diabetes management. For example, reminding doctors about different aspects of diabetic patient's care resulted in better diabetes care (22). On the other hand, in an era of fast technological developments and globalization, reminding and informing patient via cellular phones by text messaging results very beneficiary in terms of adherence to diabetes control strategies and disease self-management behaviors (23-24). Therefore, this could be recommended even for a country such as Albania, which is estimated to have around 65.000 thousand diabetic persons (2), and where the prices of cellular telephony have been reduced significantly and thus being more affordable to be used by various stakeholders for promoting health and preventing undesirable health consequences.

In summary, the key point for a successful diabetes management in our country should be the focusing on education of patients. This is especially important in a country with limited health system resources as education campaigns can reach considerable population numbers at refrained costs. Patient education toward prevention of the disease and self-management of the condition is becoming increasingly crucial among Albanian citizens who are becoming more and more exposed toward diabetes risk factors. According to Demographic and Health Survey 2008-2009 in Albania, among persons aged 15-49 years, the prevalence of smoking was 4% among women and 43% among men, with fast increasing rates among urban well-educated women. One-third of women and two-thirds of men had ever used alcohol, 20% of women and 30% of men are living with hypertension and more than 80% of both sexes had at least one problem accessing health care. (25). Moreover, obesity, a well-recognized risk factor for diabetes, is an alarming emerging concern among the Albanians citizens, especially among the new generations. All these facts and figures lead to troublesome forecasts regarding the burden of diabetes in the future. Therefore, the preventing of this disease should start as early as possible, and the education is a cost-effective way to do this.

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ABILITIES AND COMPETENCIES OF FAMILY PHYSICIANS IN ALBANIA: ADAPTATION OF A CONCEPTUAL FRAMEWORK FOR QUALITY IMPROVEMENT

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Abstract

Health professionals need competencies in quality improvement in order to contribute to effective and efficient patient care. Fairly recently, a quality improvement (QI) competency framework was developed in the course of a systematic consensus study carried out among European primary care experts interested or specializing in quality improvement. This QI framework is organized in six domains: Patient Care & Safety, Effectiveness & Efficiency, Equity & Ethical Practice, Methods & Tools, Leadership & Management, and Continuing Professional Education. Each of the domains reflects an important area of health care practice. The domains include 35 specific competencies which constitute individual standards. However, the key to the usefulness of any quality framework is its adaptability to local structures, environments and needs. Therefore, before using the proposed framework in Albania, policymakers need to consider the unique practice situation and personal educational development needs in the Albanian context. Nonetheless, the proposed QI competency framework covers the QI competencies needed by general practitioners and family physicians to successfully foster their continuous medical education or continuous professional development in a comprehensive way. The framework is a trans-disciplinary tool which supports general practitioners to address their mixed medical care environment when planning or introducing change.

Keywords: competencies, family physicians, general practitioners, medical practice, primary health care, quality improvement.

Introduction

Recent research work has convincingly argued that health professionals need competencies in quality improvement in order to contribute to effective and efficient patient care (1). Health professionals should be able to demonstrate biomedical, clinical, epidemiological and socio-behavioral knowledge and apply all these in their daily practice (1). Different competency models have been developed for health professionals in the last decades and a few of them serve as a basis for quality improvement (QI) curricula at different levels of education and form the basis of training for the majority of medical learners in western settings (2). In the USA, a model has outlined six major aspects of quality of care: patient safety, effectiveness, patient centeredness, timeliness, efficiency and equity, which were incorporated into some medical curricula for QI (3). Furthermore, Greiner and co-authors have defined five core competencies for health professionals in the area of continuous medical education (CME): being able to provide patient-centered care, working in inter-professional teams, employing evidence-based practice, applying quality improvement and utilizing informatics (4). The Bellagio model put forward nine essential features for qualitative (chronic) care: leadership, public trust (accountability and transparency), population-oriented management, vertical and horizontal integration, networking of professionals, infrastructure, payment mix, standardized measurement and an active program of change (5). As the concept of competence may vary based on interpretation of the term, here we define it as a synthesis of knowledge, skills and attitudes that enables family physicians/general practitioners to deliver high quality care (6). Knowledge is understood as a condition of knowing something with familiarity, competence: the ability to apply knowledge to meet, or surpass specified standards and skill: the ability to apply knowledge appropriately and to a consistently high standard often referred to as tacit mastery (1).

Competency models can also serve as a useful self-evaluation tool for primary care physicians committed to practice-based learning (7) who want to improve their care practices, analyze their clinical experience, plan a change for improvement, make a change effort, and finally determine if it was an improvement or not by incorporating improvement knowledge into the daily practice routine.

Development of the quality improvement competency framework for primary care

A recent article delineates the QI competency framework which was developed in the course of a systematic consensus study carried out among European primary care experts interested or specializing in quality improvement (1). The framework is an instrument to facilitate the assessment of the QI competencies in the general practice environment in terms of the quality of care – current status and activities for improvement as well as educational needs which once improved may lead to a positive change in care provided (1). It is argued that the proposed QI framework can also provide an organizing structure to guide the development and evaluation of educational programs. This framework can (and should) be extended and improved over time, and has the potential to be used as *"a model, a reference, a plan, a source of ideas or a benchmark to identify competency gaps, design individual educational development plan, aid course designers in developing a continuous professional development (CPD) offer for general practitioners (GPs) and family doctors (FDs)"* (1). The key to the usefulness of any quality framework is its adaptability to local structures, environments and needs (1). Therefore, before using the framework in Albania, policymakers need to consider the unique practice situation and personal educational development needs in the Albanian context. In any case, the QI competency framework apparently covers the QI competencies needed by GPs/FDs to successfully foster their CME or CPD in a comprehensive way (1).

The QI Framework is organized in six domains (1): Patient Care & Safety, Effectiveness &

Efficiency, Equity & Ethical Practice, Methods & Tools, Leadership & Management, and Continuing Professional Education. Each of the domains reflects an important area of health care practice. The domains include a number of specific competencies which constitute individual standards. There are 35 competencies arranged across six domains, as presented below (1,8,9):

A. Patient Care & Safety

1. Practice patient-centered medicine by understanding the patient's experience and then reflecting on care.
2. Deal effectively with critical incidents and medical error.
3. Practice infection prevention and control.
4. Practice medication safety.
5. Apply a systems-based organizational approach to patient safety in the practice.
6. Incorporate effective communication to improve patient safety and involvement.
7. Provide appropriate disclosure to patients when errors occur. Develop and Monitor individual health care plan with the patient.

B. Effectiveness & Efficiency

1. Standardize service delivery where possible to improve timeliness of primary care.
2. Measure practice performance & competence according to national and EU standards.
3. Implement evidence-based medicine guidelines.
4. Ensure data quality.
5. Managing resources efficiently in order to increase the efficiency of service delivery.
6. Promote methods of continuous improvement.
7. Standardize quality improvement efforts to make the process more efficient and sustainable.

C. Equity & Ethical Practice

1. Analyze the equity of practice performance and take action when necessary.
2. Respect patient autonomy.
3. Respect patients' personal rights.
4. Manage all patient data safely and ethically.
5. Understand intercultural patient concerns.
6. Recognize, understand, and address ethical dilemmas.
7. Understand social contexts in general practice.
8. Prioritize quality improvement activity and understand its effect on patient care.

D. Methods& Tools

1. Understand and use the Plan-Do-Check-Act quality cycle.
2. Understand Change Management and the consequences of change in term of the Plan-Do-Check-Act cycle.
3. Measure performance and use data for improvement.
4. Understand and use measurements for accountability.
5. Use benchmarking feedback and audit techniques to measure and improve quality in the context of your practice or region.

E. Leadership& Management

1. Work in partnership with all stakeholders of the practice population.
2. Work as an inter-professional team in a practice, in a network, and in the community.
3. Understand how to take or delegate leadership for quality improvement.
4. Negotiate for change, with staff, and with clients.

F. Continuing Professional Development

1. Understand and use self-assessment.
2. Develop and maintain individual continuing learning.
3. Pursue systematic practice-based learning and improvement CPD.
4. Understand the gap between prevailing/current performance and local/national accepted standards.
5. Engage in inter-professional learning where appropriate.

Use of the proposed QI framework for personal development or quality improvement in medical practice

It is recommended for the QI framework to be

used by GPs/FDs to identify their educational needs in the area of QI (1). From a personal improvement perspective, the QI framework can be used as a whole instrument or only its parts such as specific domains for individual reflection and identification of areas for development or improvement (1). In this regard, "A five-stage model" developed by Dreyfus can be rather useful. The model distinguishes five categories: novice, advanced beginner, competent, proficient, and expert. This model can be applied to the QI competencies included in the model and aid self-assessment (1). The scale allows us to appreciate that competencies can be improved or acquired (1). If the change is to be introduced at the practice level by implementing a quality improvement project, the QI framework can help in the identification of the gaps in performance (1). The competencies can serve as standards to be met or benchmarks if the improvement project is aimed at comparison with other performers in a target QI area.

The assessment using QI competencies should help GPs/FDs demonstrate an awareness of and responsiveness to the larger context and system of health care in which they operate and the ability to call on system resources to provide care that is of optimal value.

The proposed QI competency framework has a great potential (1). It can help teachers and trainers who develop and provide CPD curricula for family doctors identify important QI competencies (1). A framework of competencies provides an operational structure for development and evaluation of educational programs.

In conclusion, the proposed QI competency framework covers comprehensively the QI competencies needed by GPs/FDs to successfully foster their CME or CPD. The framework is a trans-disciplinary tool which supports GPs to address their mixed medical care environment when planning or introducing change.

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POVERTY AND SOCIAL EXCLUSION: UNDERSTANDING THE THEORITICAL FRAMEWORK OF SOCIAL EXCLUSION

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Abstract

Aim: This research is an exploratory and descriptive study of how the new poor usually people that migrate from other regions are socially excluded. It has three objectives. First, it accounts for the relationships between the three institutions of the welfare triangle and the social exclusion of the new urban poor against the background of economic transformation especially in the countries in transition as the case of Albania. Second, it employs an institutional perspective to look at why the urban new poor are socially excluded. Third, it suggests social policies.
Methods: This research looks at the relationships of the following four variables: labor market and social welfare institutions, family institution and social exclusion. The systematic literature review especially from the Western European countries was the tool for analyzing the problem and deducting the conclusions
Results: The main finding resulting in the study is that social exclusion is determined by the employment, education civic /cultural and political inclusion. Economic institutional transformation is the contextual factor to the social exclusion of the new poor in the transitional countries like Albania.
Conclusion: Apparently there is a gender difference in being more poor and being excluded. And there is also a relationship between the variables of migration, political participation, labour market participation in social exclusion. These findings could serve to a new orientation in social policies regarding poor and the social exclusion.

Key words: social exclusion, new poor , urban poverty, social protection.

Introduction

The term "social exclusion has been used in political and scientific discourse in Albania for 10 years now. This concept is considered to refer to a situation in which individuals' social ties are reduced or weakened and they lose the role they formerly played in the functioning of society (1). Social exclusion is most frequently linked to the problem of high unemployment and a lack of job security but not only. Besides unemployment, exclusion in the Albanian context is also connected with poverty and discrimination (2) This is the reason I would like to explore in this article the link between the two concepts and how do they interfere each other.

Based on the rich body of the literature review the term of social exclusion refers to "a process whereby certain individuals are pushed to the edge of society and prevented from participating fully by the virtue of their poverty or lack of discrimination" (3). The term of social exclusion was first used in France in 1970 (4), than it became more familiar in Europe and it is still more familiar in Europe and Great Britain than in USA.

It is clear now that the social exclusion is quite a new paradigm born because of the limitations of the concept of poverty, this explains the lack of the studied related to the issue.

Why do we need to analyze separately the two concepts?

The need of analyzing the two concepts corresponds to the analytical distinction of the two concepts. Social exclusion is perceived as a process and poverty as an outcome (5).

So many studies that refer to the two concepts use the term of poverty to denote an outcome and analyze the term of social exclusion to refer to the process. By analyzing social exclusion, we underline the malfunctioning of societal systems that should guarantee the full citizenship.

The framework of Social Exclusion

As mentioned earlier the term of Social Exclusion was first of all used in France but than in 1989, the term "social exclusion" became a constituent part of the Preamble to the European Social Charter – the basic document of the Council of Europe concerning social rights. The Charter was amended in 1996 when a new right, "the right to protection against poverty and social exclusion", was introduced. During the 1990s the common EU social policy led to the formulation of a strategy to combat social exclusion at the 2000 Lisbon European Council (known as the Open Method of Coordination).

Even though this concept is quite recent, the concept of Social Exclusion is being used both in developed and transitional countries especially in the studies carried out from international agencies of UN. This approach itself aims to understand the process marginalization of some individuals groups or communities. The concept of social exclusion includes the process of poverty or it serves as an umbrella. There are some common points between the Monetary Approach, Capability Approach and the Social Exclusion Approach. |From a considerable literature review I have done, I think that Sen approach related to poverty has many common points with Social exclusion approach.

So individuals, social groups, or geographical areas can be considered socially excluded if they experience political, economic and/or social disadvantages, lack of confidence, a sense of powerlessness or a degree of social alienation, resulting from a combination of interrelated problems, such as regional disparities, unemployment, poor professional or social skills, low incomes, poor housing, high crime and violence levels or identification with a minority group.

In 2001, in an effort to standardize its measurement of social inclusion, the EU adopted a list of social exclusion indicators known as the Laeken indicators. These 18 statistical indicators cover four dimensions of social exclusion: financial poverty (income), employment (labor market), health and education. However, a single list is just the first step in standardizing the

measurement and the analysis of social exclusion indicators. A number of recent studies still differ in the way they collect and analyze data (different indicators of social exclusion and non-monetary deprivation were used in the reports based on the data gathered by the ***European Community Household Panel (ECHP).***

So there are four systems to analyze in order to have the overall picture of Social Exclusion

· Democratic and legal system which promotes the civic integration

· The labor market which promotes the economic system

· The welfare system which promotes social integration

· Family and community system which promotes interpersonal integration

Methods

The systematic literature review is a very important and an analytical process. It is based on the critical analyze of the existing literature regarding the issues of poverty and social exclusion. During the process of the literature review the selection of the appropriate literature as well as the synthesis of the literature can help the researcher gain a new perspective for the research. This process will be described as the following:

A) To identify the most common terms used in the contemporaneous literature related to the issues of poverty and social exclusion the factors that influence for the individuals to lose the ties with the society as the process of social exclusion is considered.

B) The systematic literature review is based on a process that consisted not only in reviewing the theories that explain the social exclusion but also in the critics for each theory. It is an analytical process and not a normative one.

C) Organizing the body of literature that has been selected.

D) Writing down the final review of the literature.

Research questions

1- Which are the indicators of social exclusion in transitional countries when Albania is a part of it?

2- Which of the following dimensions of the social exclusion : economic dimension , social dimension or cultural dimension contributes the most in the exclusion of the individuals or groups from the society

Analyzing the literature review

Different components of social exclusion influence each other. Deprivation usually begins with the loss of employment, which in turn leads to a significant degradation in living standards, that is, increased risk of poverty (6).

Living in poverty creates additional difficulties in the search for employment and contributes to a long-term unemployment trap for many individuals. At the same time, unemployment and poverty inhibit participation in social activities. Due to the lack of money and to the stigmatization that can be caused by unemployment, social ties are weakened, increasing the probability of social isolation (7). If the period of unemployment, and consequently poverty, is prolonged, tensions will occur in the family and in marital relations.

The lack of money worsens not only family relations but also ties with friends, neighbors, and relatives, since 'social exchange' is necessary for the maintenance of social relations. Piere Bourdieu states that one should invest time money in order to be socialized. In turn, the social isolation has an adverse effect on employment, since the individuals concerned are isolated from sources of information and lack the support needed for employment search. Social exclusion is understood first as exclusion from the labor market.

Labor is not only the basis for economic independence; it also promotes certain moral values, such as self-respect and a desire for advancement. (8) However, those who stress the

central place of work in society often reduce citizenship to participation in the economy, and neglect the fact that there are large inequalities among those who work for a living. If social exclusion is conceived primarily as exclusion from the labor market, in other words, if employment is a precondition for inclusion, then education is one of the key mechanisms of social inclusion.

Results

The research based on the literature review has the following major findings:

· The main findings resulting in the study is that Social Exclusion is determined by the employment, education civic/cultural and political inclusion.

· Economic institutional transformation is the contextual factor to the social exclusion of the new poor in the transitional countries when Albania is a part of it.

· The social exclusion of the new poor is a result of the interactive processes of the three institutions of the welfare triangle-labor market, social welfare and family. It enables a better understanding of how the new urban poor are socially excluded in the context of a transitional economy in the case of Albania. Social welfare institution is supposed to enhance people's well-being, but in the case of the new urban poor in Albania, it was a source of their problems

· The main findings resulting in the study is that Social Exclusion is determined by the employment, education civic/cultural and political inclusion.

· Labor market participation is often used as the indicator of economic inclusion and social inclusion.

· Political participation is a very important indicator of political inclusion.

· Group and association membership social and cultural participation are the indicator of civic and cultural inclusion.

· Studies show that migration has also positive effects into falling in social exclusion.

· The main finding that study is that the Social Exclusion is determined by the employment , education civic /cultural and political inclusion.

· The literature review indicates that all the above mentioned dimensions contribute to the social exclusion status of the households.

Discussion and conclusions

This study aimed also to explore the relationship between social exclusion and migration using many articles and reports from Internal Agencies as UNDP etc. Although, in general, cultural differences have been found conceding affect, this remains as an open question for future studies. Lastly, I need to indicate the necessity of longitudinal studies in order to make comparisons of the intervention policies.

There are significant differences between men and women for social support. Women are more effective in the interpersonal arena, whereas social support may contradict men's gender role. Prohibitions of emotional expressions, in conjunction with rules involving power, and control, do not facilitate a wider range of coping behaviours in the case of social integration for men (9).

Regarding practical contribution of this paper I could mention that the results of this study could have implications for a new orientation in social policies regarding poor and the social excludes people especially those who have recently migrated from other areas in Albania. Apparently there is a gender difference in being more poor and more excluded . the findings suggest that there is a relationship between being poor and being social excluded but also that is a relationship between the variables of migration , political participation labor marked participation in social exclusion.

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ASSESSMENT OF NATIONAL HIV/AIDS EXPENDITURE IN ALBANIA

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Abstract

Background

Analysis of the sources and flows of funding is necessary due to the importance of effective allocation in HIV/AIDS programs. It is important to keep track of the financial resources aiming to ensure the financial sustainability as well as strengthen the decision making process for the use of funding for HIV/AIDS program.[1]

It is important to keep track of HIV expenditure as far as the decision making regarding allocation of funds through HIV/AIDS activities, must be based on the real effect of previews expenditure as well as on the profile of the epidemiological data of the country in order to achieve universal coverage[2]. The importance of this analysis lies in establishing the information related to financial flow from the Source of Financing to the service providers, as well as the contribution of international and public funds on HIV/AIDS program

The purpose of this paper was to identify the sources and amount of the funds for HIV/AIDS Programs. This paper will give the information about the financial trends of HIV/AIDS expenditure during the period 2008-2010 from public, external and private sources

Objectives:

· To Effectively track the expenditure on HIV and AIDS , keep a record and synthesise this data into information for decision making

· The financial resource tracking of HIV/AIDS program in order to determined what is actually disbursed or spent in a country level tracking at the

· Analyse the data collection, identify the sources and quantities of the funds available for HIV/AIDS program and give the recommendations for better allocations in the future.

Methodology

Data collection will be based on Top down, and dawn top techniques for tracking sources of funds using the financial report of the government as well as international donors' reports such as On UN agencies, GFATM report. Data collection through Top-dawn techniques will enable to identification of funding source, who are the financial agent who make the decision on resource use The assessment of costs by program activities of HIV/ AIDS will be done by using the bottom–up approach, collecting the data from service providers, for public and international funds.[3]

The data analysis is descriptive, allowing the identification of flows of resources as well as of the major actors of the national response towards HIV/AIDS, giving the overview about the contribution of Public and external funds on HIV/AIDS program

The definition proposed as expenditure in HIV/AIDS in this paper is: *the amount of money allocated from Government and external sources for spending on HIV/AIDS prevention and care programs*.

Study limitations

The key sources of information were Ministry of Health, Ministry of Finance, Health Insurance Institute and other health Institutions. The Ministries of Health and other Health institutions don't allocate the money using various criteria into different activities and programs to enable a functional classification of HIV/AIDS expenditure. The budget allocation still continue to be based on historical block budget

The data collection is based on similar techniques and definitions of NASA system, however it does not follow the NASA methodology in detail for HIV/AIDS categories expenditure, because there is missing information on data dissemination, from the services' providers

Albania doesn't have developed the national HIV/AIDS health account that could help in better tracking of HIV/AIDS expenditure. The lack of information about the HIV/AIDS out of pocket health care expenditure was a further limitation

Introduction

Albania remains a low HIV prevalence country. As of July 2011, total cases of HIV positive amount to 451, and total cases reported in the stage of AIDS amount to 160 and the number of new cases is 43 (January-July 2011).

More than 90% of these infections occurred due to sexual contact (82% heterosexual and 10% homo-bisexual), and the most affected age group is people between the ages of 25 and 44 years. HIV transmission via infected blood has been confirmed in 3 percent of cases, and mother-to-child-transmission (MTCT) in 45% of the cases. However, country's specific socio-economic condition and the regional context of HIV/AIDS influence the vulnerability and the risk for rapid spread of HIV/AIDS epidemic, particularly among most-at-risk populations[1]. Furthermore, the results from the repeated bio-behavioural surveillance studies in 2005 and 2008 indicate that high risk behaviours are still present among most-at-risk populations such Injecting Drug Users (IDU), Man who have Sex with Man (MSM)[2]

Health Expenditure

Total Health expenditure in Albania during the last decade is about 2.8% of GDP. The total health expenditure has increased from 2000 that was around 2% and has been increased during 2008-2010 to 2.67% (average of the 3 yeas) . The % of GDP shows the increase rate of 34%. The time period of 2008-2010 shows that the Total Health expenditure as % of GDP has been decrease with the rate of 7% in year 2010 compare with 2009. This is due to the reduction of international funds, as well as 3% of Public Health expenditure form 2009-2010 (Table1).

Table 1. Total Health expenditure

000/leke

Year	2008	2009	2010
Public health funds	29,112,314	32,414,293	30,950,430
Private health funds	28,923,492	30,647,333	29,650,000
International health Funds	1,582,959	2,104,734	1,518,674
Total Health Expenditure as % of GDP	5,48	5,65	5.07
Public Health Expenditure as % of GDP	2,68	2,81	2.53
TOTAL health Expenditure per capita	18.75	20.43	19.53

HIV/AIDS expenditure by Source of Funds

Table 2 shows the total financial resources available for HIV/AIDS expenditure:

Table 2. Total HIV/AIDS expenditure 2008-2010

000/leke

Year	2008	2009	2010
Government in 000/Lek	39,262	60,003	70,876
Donors in 000/Lek	59,440	45,843	26,979
GFATM	106,442	95,302	85,408
Total Donors	*165,883*	*141,145*	*112,386*
TOTAL GOV +Donors	*205,145*	*201,148*	*183,262*
Total HIV/AIDS expenditure as a percentage of GDP	0.019	0.017	0.015
Total HIV/AIDS expenditure as a percentage of Total Health expenditure	0.34	0.31	0.30
Per capita HIV/AIDS expenditure	0.065	0.063	0.057
Per PLWHIV expenditure	841	677	544
GDP	1,089,300,000	1,151,000,000	1,224,900,000
Population	3,180,000	3,190,000	3,200,000
PLWHHIV	244	297	337

The contribution of Government HIV / Aids expenditure during the 2008-2010 shows increase rate over 80% from 2008, but from the other side the decrease of Donors funds with 32%. Taking into account that the Donors Fund covers 81% of HIV/AIDS expenditure in 2008, the decrease of funds has the impact on the Total of HIV/AIDS expenditure. This translates into decrease of HIV/AIDS Expenditure per capita of 11%.

International source of Funds

The table 3 shows the budget spend in 000/lek during the period of time 2008-2010 by two main sources. Government sources include all the money from public revenue, tax payer, insurance and provides the money to financing agents namely MoH and HII.

Table 3. Total HIV/AIDS expenditure 2008-2010 by source

000/lek

Year	2008	2009	2010
Goverment in 000/Lek	39,262	60,003	70,876
Donors in 000/Lek	59,440	45,843	26,979
GFATM	106,442	95,302	85,408
TOTAL	205145	201148	183,262

The donors' budget is divided in two main sources:

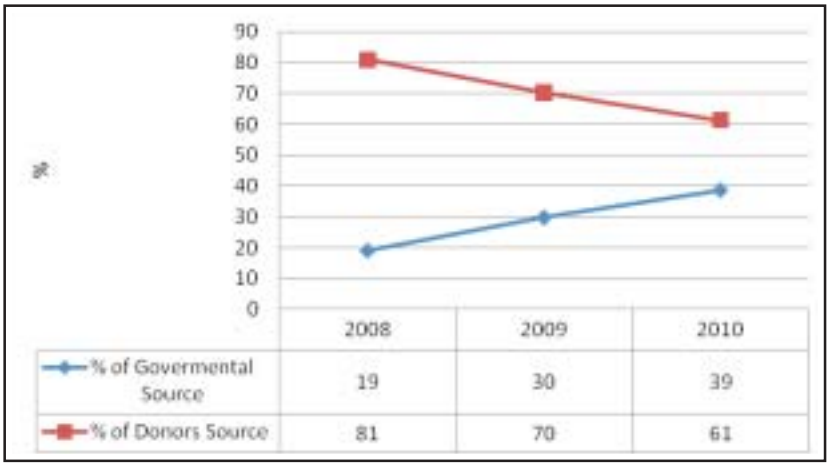
1) The donors are the main source of funding for HIV/Programs. Their contribution is more than 81% in 2008 and more than 60% in 2010

2) The GFATM funds that is the most important fund in external sources. The GFATM funds covers more than70% of International sources during the period of time 2008-2010

3) The other donors, are UN agency and other international agency that contributes in HIV/AIDS programs

Figure 1 illustrates the budget rate change during the period 2008-2010, based on financial sources

Figure 1. Percentage share HIV/AIDS expenditure by source of Funds



Public Funds constituted 39% of the Total HIV /AIDS expenditure in 2010, and External source or international sources of finance med up 61 % of all HIV Expenditure in 2010. Public Funds shows an increase in Government contribution of 100% during the year 2008 to 2010 and International sources shows a decrease rate % of donors contribution of 25 % of International sources during the same period of time.

It is critical note that it is no data on private funds or household out-of pocket HIV and AIDS expenditure.

The trend of international donors is decreasing over the years, and the state budget would take into consideration a future financial sustainability plan for HIV/AIDS program activities.

HIV/AIDS Expenditure on Main Programmatic Areas in Albania

A further disaggregation of data shows that the key spending priorities in 2010 for both Public and External source have been Prevention (64 % of total expenditure); Care and treatment 21% of total expenditure and Program Management and Administrative around (14.52% of total expenditure).

This result shows that the contribution of public funds in Prevention is about the 23.37% of the total expenditure and 55% of total Public funds. Treatment and care made up to 35% of the expenditure by Public Funds and 21.46% of Total expenditure. About 70% of the care and treatment is covered by Public funds, and 30% of this category is covered by Donors fund. The major cost of this category is ARV treatment which is 53% of the total Care and treatment cost category expenditure and 12% of total expenditure. The first line treatment is financed by Albanian Government.

Total expenditure on Program and management in 2010 was 14.52% of total expenditure.

Financing mechanisms flows

Government is one of the most important Public Funding Source for HIV/AIDS activities The state budget flows directly from Ministry of Finance as a Source of Public Funds to the Ministry of Health, as a funding agent and continues to flow to the National Institute of Public Health, (Public health Level-services provider) . Ministry of Health as a funding agency allocate the budget to the Department of Public Health (primary level) and to the Center of Blood Control as providers Services. In addition, MoH finances directly the ART treatment cost to service providers (public hospitals.

While the Ministry of Finance as a source of finance, decide to allocate resources to national HIV response, financing agents such as Ministry of health have the ability the type of activity or product to fund or purchase. Ministry of Health as a financing agent provides budgetary funds towards the institution that provide services such as National Institute of public health, Department of Public Health and Center of Blood control as well as providing all investments in primary level, secondary level and public health.

On other financing agent is the Health Insurance Institute that pool financial resources, from Ministry of Finance and from tax payer for purchasing services such as primary care and hospital care[1] . The HII still continue to buy the services not based on the cost per services, but based on historical budget of Services provider, divided in recurrent cost and .

According to the NASA classification HIV services Providers (PS) are entities that engage in the production, provision, and delivery of HIV services. Services providers consist on governmental organization as well as non gov. organization.

The providers of services of PLWHIV are in two main area:

1. **Prevention services providers**
2. **Care services providers**

The Prevention services providers are: National Institute of public health through the national HIV/ AIDS program provides the services to the population, departments of public health in the District areas are providing the services to the population through the VCT, as well as center of Blood control by testing the blood donors for HIV and STI. All the above services providers contribute to prevention of HIV/AIDS.

The Care services for PLWHIV is provided in three levels of Health care service: in Primary level through the family doctors, Secondary level in the Districts Hospitals , in tertiary level Mother Teresa Hospital for the ARV treatment as well as for hospital services such as OI care and others care e treatment services

The other providers of services for PLWHIV in the prevention area are:

The External Donors are the source of Funds that covers and support most of the HIV/AIDS programs activities through the Public Services such as national AIDS program, as well as NGO-se more in prevention area.

The external donors report to the Ministry of Finance each year to the Department of Strategy &

Donor Coordination for the disbursement of the total funds for different area of intervention, but

Recommendations

The results of this paper show the availability of financial resources for HIV/AIDS Program in Albania as well as the flow of financial resources in Health sector. The data are descriptive and can help in understating the trend of financial sources during the period of time 2008-2010. Those data provide good indicators aiming to compare the situation with the countries with similarity in HIV/ AIDS epidemic situation

These results provide as well a series of financial indicators describing the country's response to HIV/ AIDS, including governmental, non-governmental and international cooperation activities. They represent an increasing trend of domestic expenditure versus international expenditure. A very critical issue is that State budget should take into consideration to plan financial sustainability for HIV/AIDS activities that actually are covered by donors.

In order to improve the data collection system and to ensure financial tracking from health organization as well as non health organization it is necessary the introducing the NASA system. Establish a standardized system such as NASA, will make it possible to systematically collect the data on sources of funding and their flow from origin to the beneficiary

Implementation of an ad hoc study to estimate data on private funds or household out-of pocket for HIV and AIDS expenditure is another key recommendation.

Budget Preparation and Planning by financial agent based on cost for services providing as well as based on HIV/AIDS program activities, prevention, treatment etc. will help with obtaining adequate data for categories expenditure for this program.

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DRUG SAFETY IN HOSPITAL SETTINGS AND THE ROLE OF PHARMACIST

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Abstract

Background: Problems associated with pharmacotherapy (in particular medication errors and adverse drug reactions) are frequent and are associated with increased costs. Drug related problems include those problems which can potentially affect the success of pharmacotherapy in a given patient. With particular interest, of all drug related problems, are medication errors, adverse drug events, adverse drug reactions and drug-drug interactions. The aim of this study was to analyze and to evaluate the data about medication errors and/or adverse drug reactions in hospitalized patients focusing on comedications and avoidance of problems associated with them.
Methods: We have examined 100 files randomly selected from the Cardiology Clinic activity during 2010 at "Mother Teresa" University Hospital in Tirana and analyzed them to spot out any potential medical errors, as well as their gravity.
Results: Data obtained from this study have shown that errors occurred at a rate of 10 per 100 prescriptions, 85 per 100 transcriptions of prescriptions, 66 per 100 for administrations preparation. Drug–drug reactions during the medication process such as errors with statin in hospitalized patients were 2%, without causing any serious effect.
Conclusions: Medication errors and adverse drug reactions are frequent findings in hospitalized patients, potentially leading to increased duration of the stay in the hospital or even to fatalities and increased costs for the hospitals.

Key words: medication error, adverse drug reaction, adverse drug events, drug-drug interaction

Background

An optimal pharmacotherapy is achieved when the right drug in the correct dosage and quality reaches the right patient at the right time point. In particular for the hospital pharmacist, drug therapy should also be optimized economically and the correct disposal of drug waste should be assured. Despite all the efforts of hospital pharmacists, physicians, nurses and other health professionals involved, most drug therapies have not only the desired and expected beneficial effects, but are associated also with adverse reactions (1). All circumstances, which potentially or actually impair the optimal result of pharmacotherapies are called "problems associated with pharmacotherapy" or "drug-related problems" (2), consisting mainly of medication errors and adverse drug reactions.

Drugs not only have beneficial effects but can also be associated with adverse reactions. During the last decade, several studies have been published highlighting the significance of adverse drug reactions in hospitalized patients in terms of frequency (1, 3-5), consequences for the affected patients (2, 6-7) and costs for the hospitals (8-10). Adverse drug reactions can be regarded as the top of a pyramid, which contains all problems associated with drug therapy (11). A more precise definition of these terms is given in Table 1.

Table 1 Definition of problems associated drug-related problems

Drug-related problems	All circumstances that involve a patient's drug treatment that actually, or potentially, interfere with the achievement of an optimal outcome (2)
Medication errors	Any error in the medication process (prescribing, dispensing, administering of drugs), whether there are adverse consequences or not (5)
Adverse drug reactions	Any response to a drug which is noxious and unintended and which occurs at doses normally used in humans for prophylaxis, diagnosis or therapy of diseases, or for the modification of physiological functions (6)
Adverse drug events	Any injury related to the use of a drug, even if the causality of this relationship is not proven (5)

Medication errors can occur along the whole medication process and represent risk factors for adverse drug reactions (6, 12). The medication process starts with the prescription of a drug; the prescription has to be transmitted usually to a nurse and also into the pharmacy for delivery of the prescribed drugs. Nurses usually prepare the drugs on the ward, and distribute and administer them to the patients. The cardinal steps, which have been reported to be particularly afflicted with errors, are drug prescription and drug administration (2).

In the majority of cases, medication errors do not lead to adverse drug reactions (5), but they represent a strong risk factor for adverse drug reactions, which can be avoided. While medication errors are judged from the handling of drugs, for adverse drug reactions, the patient is in the center. It can be expected that approximately 6% of the hospitalized patients will have at least one adverse drug reaction during the hospitalization (1).

Methods

We have carried out a retrospective study by analyzing 100 files of patients hospitalized in Cardiology Clinic at "Mother Teresa" University Hospital in Tirana during 2010. The files were randomly selected based on criteria of sample size according to SPSS package. We were focused on medical errors during the entire process of

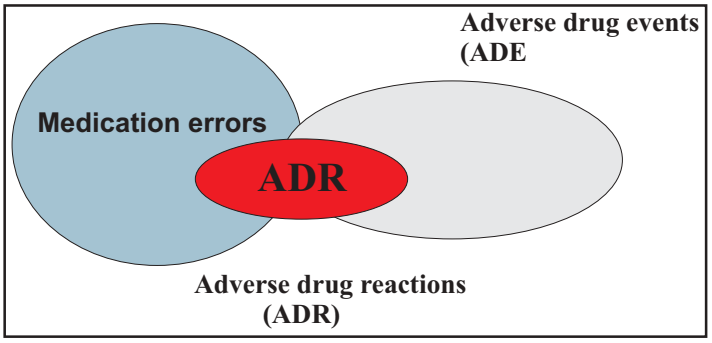
medical treatment of patients, starting from prescription errors, and then continuing with transcription of prescriptions errors, preparation and dispensing errors (correct prescription) and administrative errors.

The opinion of many authors published in scientific journals (1), is that reporting adverse drug events can pose problems in their classification. Unlike adverse drug reactions, adverse drug events also include medication errors (see definitions in Table 1). Such studies were reviewed very carefully and were mostly classified under medication errors. If the available data allowed the calculation of the frequency of adverse drug reactions through medical errors, they could also be classified under adverse drug reactions or under both medication errors and adverse drug reactions.

Results and discussion

Drug-related problems can be illustrated with the intersections of three circles representing medication errors, adverse drug events and adverse drug reactions. Medication errors include every mistake in the medication process (prescribing, dispensing, administering of drugs). Only a minority of the medication errors result in an adverse drug reaction or an adverse drug event. Adverse drug events represent any injury related to the use of a drug, even if the causality of this relationship is not proven. Adverse drug reactions are noxious responses to a drug which are unintended and which occur at normally used doses of this drug. Adverse drug reactions are either predictable (and therefore mostly avoidable, type A reactions), or unpredictable (idiosyncratic or type B reactions).

Figure 1. Problems associated with pharmacotherapy



We have detected 161 medication errors in 100 patients files (Table 2). Considering the medication errors, it has to be taken into account that the methods used to measure errors and the way to express error rates differ among files, rendering the results difficult to compare due to the errors faced with. We found more than one error per patients file with a frequency of 1,6. As shown in Figure 1, medication errors are most often determined as the number of errors per transcriptions of prescription and administrations. The reported errors obtained by this study were 10 per 100 prescriptions, 85 per 100 transcriptions of prescriptions, 66 per 100 for administrations preparation.

Graph 1. Medical errors detected in cardiology Clinic for 2010

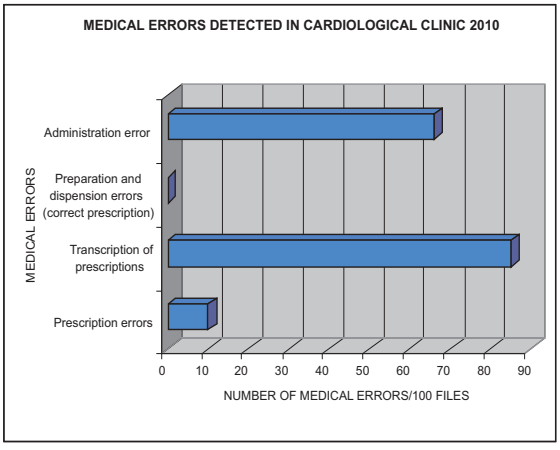


Table 2. Detailed table for medical errors obtained by this study

Medication error		Errors/100files
1 Prescription errors	1.1 Wrong drug (e.g. drug not suitable for this indication)	0
	1.2 Correct drug, wrong patient (e.g. ignoring contra-indications, drug-drug interactions or drug allergies)	2
	1.3 Wrong galenic form (e.g. tablets in a patient not able to swallow	1
	1.4 Wrong dose	7
2. Transcription of prescriptions (e.g. physicians - nurses)	2.1 Usage of abbreviations,	0
	2.2 Oral prescriptions	0
3. Preparation and dispensing errors (correct prescription)	3.1 Calculation error, preparation error	0
	3.2 Dispensing (e.g. wrong patient, wrong drug)	0
4. Administration error	4.1 Wrong dose	17
	4.2 Wrong administration time	25
	4.3 Omitting error, additional dose	33
	4.4 Wrong handling of drugs during application (e.g. infusions	0
	4.5 Wrong infusion rate	0

The table shows that higher percentage errors refer to three treatment processes, the time of taking the drug, changes during the process of drug treatment and dosage. These three groups of medical errors can lead to interaction with drugs that provide an adverse event. According to USP-ISMP Medication Error Reporting Program (MERP) form, results of this study demonstrate that medication errors occur in about of all drug applications and adverse drug reactions from drug-drug interaction occurred in about 2% of hospitalization patients.

Since, at least on medical wards, patients are usually treated with 5-10 drugs per day and stay for approximately 14 days in the hospital (4), they may have about 75-140 drug applications per hospitalization, suggesting that most patients will be affected by one or more medication errors. On the other hand, approximately 2% of the patients have an adverse drug reaction, indicating that only a minority of medication errors will lead to a clinical manifestation. In agreement with these considerations, it has been estimated in published clinical studies that approximately 3-5% of all medication errors result in adverse drug reactions (13,-15). The importance of medication errors is therefore primarily given by the facts that they represent risk factors for adverse drug reactions and that they are avoidable.

The most important reasons for high variability are different drugs the patients are treated with and different methods used to determine the error rate (1, 15-17). According to the opinion of some researchers, about 59% (median) of the adverse drug reactions are judged to be preventable (50-87 %) (5, 15-19) and can therefore be considered to be primarily the result of medication errors. Drug-drug interactions can therefore be considered as medication errors, representing risk factors for adverse drug reactions.

In recent studies published in scientific journals, drug-drug interactions were estimated to account for a median of 5% (4.8-17%) of all adverse drug reactions (20-23), affecting approximately 0.3% of the patients per hospitalization. Since the prevalence of potentially severe drug-drug interactions is in the range of 60% in hospitalized patients (24), only a small fraction (<1%) of the potential drug-drug interactions appear to cause adverse drug reactions. The fraction of the patients with a potentially serious drug-drug interaction being affected by an adverse drug reaction depends on the drugs involved.

The most important risk factors for medication errors include lack of information about drugs or about the patients to be treated, errors in the patient charts and/or in the documentation of the nurses and lacking or decentralized pharmacy services. Recommendations for reducing medication errors include an improved process in pharmacotherapy and the installation of a "no-blame" error reporting system (24). Medication errors occur along the entire medication process, from drug prescription to administration (2). Regarding drug administration, in particular intravenously administered drugs are prone to errors (25-26). To increase drug safety, intravenous bolus administrations should be replaced by short infusions and complex infusions should be prepared in the pharmacist supervision (26). While unauthorized drug administration and transcription errors can be reduced by organizational measures and/or computerized prescription (27), reduction of prescription errors is more complex. Important risk factors for prescription errors include high workload, prescribing for a patient, communication deficits. .Real-time electronic prescription aids may be helpful to reduce such errors (1, 28-30). Several studies have shown that improved pharmacological knowledge of physicians and nurses is an efficient measure for error reduction (30-33).

Special emphasis was put on the role of the clinical pharmacists in this setting, since several publications have emphasized the importance of a direct supervision of the medication process by pharmacists (26-28).

Conclusion

Medication errors and adverse drug reactions are frequent findings in hospitalized patients, potentially leading to increased duration of the stay in the hospital or even to fatalities and increased costs for the hospitals. Risk factors are known and should guide the preventive measures.

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WORTHINESS OF BONE MARROW TRANSPLANTATION AS A TREATMENT OPTION FOR THALASSEMIA PATIENTS IN DEVELOPING COUNTRIES

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Abstract

Background: Thalassemia is a serious prevalent chronic genetic disorder worldwide, with carrier rates reaching 9% in some countries as Albania and Egypt. The long life course of thalassemia causes continuous suffering for the patients, parents and community. The problem aggravates more in developing countries where there are limited financial and human resources capable to cope with increasing numbers of patients and their needs. Treatment of thalassemia is of two types. The first is long life course treatment in the form transfusion and chelator administration. The other is the conclusive only cure for the disease, which is Stem cell transplantation, from which the most recommended type is bone marrow transplantation.
Methods: In this article we studied thalassemia in Albania and Egypt, as an example of developing countries with different circumstances.
Results: We found that long life treatments of patients can reach 25, 400 and 12,300 euros in each country respectively. In Albania, there are no enough treatment facilities for the long life demanding patients in Albania most importantly lack of adequate blood and treatment costs that approaches European standards. Similar situation is present in Egypt where there is no enough resources to overcome the annually increasing number of patients. Moreover, and due to high carrier rate with lack of preventive program, increase of disease is found to be uncontrollable as well.
Conclusions: Curing thalassemia in early age with - once in life - bone marrow transplantation can be the solution of the long life health and financial suffering for the disease.

Keywords: Albania, bone marrow transplantation, thalassemia, Egypt

Introduction:

Thalassemia major (TM) is the most common deadly genetic disorder, a major cause of chronic non-infectious morbidity and financial burden in many low and middle-income regions. In these settings few children reach adulthood because proper long-term supportive care is seldom available (1).

Thalassemia Major is a hereditary anemia resulting from decrease or even absence in the production of â-globin chains of hemoglobin This is consequent to that beta-globin synthesis is either absent or markedly reduced (2). The result is excessive production of alpha-globin chains which are incapable of forming a viable hemoglobin tetramer in lack of enough â-globin chains. In consequence, accumulation of á-globin chains, with its denaturation products (hemichromes and inclusion bodies) and degradation products (the globin itself, heme, hemin and free iron) leads to ineffective erythropoiesis at the erythrocyte precursor level as well as hemolysis at the red blood cells (RBCs) level. As a result, anemia and iron overload reveals. Both anemia and iron overload are the main lines in the systemic pathophysiology of thalassemia (3-6). Sequelae include severe anemia, hepatic fibrosis and cirrhosis, diabetes mellitus, hypogonadism, growth retardation, sexual immaturity, moderate to severe pulmonary syndromes and cardiac disorders. Myocardial disease is by far the most important life-limiting complication and is responsible for about 70 percent of deaths in these patients. The survival of patients with thalassemia major is continuously improving, but despite the advances made in iron chelation therapy, the prevalence of severe complications such as heart failure, arrhythmias, and diabetes remains high (7).

Two main lines of thalassemia treatment is transfusion and chelation:

Blood transfusion therapy

The aim of blood transfusion in thalassemia major is to maintain the pretransfusion hemoglobin level above 9-10.5 g/dl. This transfusion regimen promotes normal growth, allows normal physical activities, adequately suppresses bone marrow activity in most patients, and minimises transfusion iron accumulation .A higher target pre-transfusion hemoglobin level of 11-12 g/dl may be appropriate for patients with heart disease or other medical conditions (8).

Chelation therapy

In children who have been regularly transfused, iron chelation should be started after they have received more than 10 units of blood, or with serum ferritin levels of over 1000 ng/mL (9).

Chelator are of 3 types. Namely Deferioxamine, Deferiprone and most recently Deferasirox. The first discovered chelator Deferoxamine, it is administered by SC infusions or intravenously. Despite it is a safe and effective, its major disadvantage is decreased compliance due to its route of administration (10). Deferiprone is a bidentate chelator with an oral route of radministration. It has a significant effect in chelating cardiac iron (11). Agranulocytosis (1% in incidence) is the most serious adverse effect of deferiprone. However, neutropenia is more common. Other adverse effects include arthragia and elevated liver enzymes (10). Combination strategy between deferoxamine and deferiprone showed to be practical and effective. Finally, there is Deferasirox which is an orally administrated with once daily dose. Disadvantages include possibility of renal toxicity so attention to serum creatinine is important. Additionally, there is possible elevation of AST and ALT and GIT symptoms (10,12).

In spite of significant progress in Thalssemia chelators treatments, most which may extend life expectancy well into adulthood, most patients in low to middle income areas, where thalassemia is most prevalent, do not survive beyond 20 years of age and the risk of blood borne infections, primarily hepatitis C, is still substantial (1). By considering the chronicity of the disease, the huge psychological, social and financial burden on the

patient and family, as well as the different complications associated with the conventional therapy available, it becomes clear that searching for alternatives in the treatment of thalassemia is mandatory to avoid burden regular blood transfusion and chelation. This alternative could be bone marrow transplantation (BMT) (13).

Bone marrow transplantation (BMT) remains the only definitive cure for thalassemia major with reported thalassemia-free survival rates consistently over 80% in selected young low-risk patients with a related histo-compatible donor. BMT is also associated with improved quality of life and is generally recommended in young low-risk patients with a matched related donor. In areas were thalassemia is endemic there is a severe shortage of centers for its cure. This is not only due to lack of financial resources, in fact BMT is less expensive compared to long-term supportive care (1, 14)

Allogeneic hematopoietic stem cell (HSC) transplantation (HSCT) in thalassemia has been a cornerstone in the development of HSCT. The rational basis of HSCT in thalassemia consists of substituting the thalassemic HSC bearing ineffective erythropoiesis with an allogeneic one capable of effective erythropoiesis (9,15). This cellular replacement therapy is not limited to the diseased erythropoietic component, but leads to the replacement of the entire hematopoietic system. Nevertheless, it is an efficient way to obtain a long-lasting, probably permanent, clinically effective correction of hemolytic anemia, thus avoiding transfusion requirements and associated complications (ie, iron overload). The transplantation approach for a nonmalignant disease is much different from transplantation in malignancies. In the former setting, the detrimental immunologic proprieties (ie, graft-versus-host disease [GVHD]) of the engrafted HSC are not balanced by an antimalignancy effect. This characteristic must be always considered in determining the risk/benefit ratio and therapeutic decision such as the kind and intensity of the conditioning regimen, GVHD prophylaxis, source of HSC, and adoptive post-transplant therapies (9).

Preparatory regimens for HCT of patients with diseases other than aplastic anemia must achieve two objectives. One is elimination of the hemopoietic marrow and the other is to create a tolerant environment that will allow the transplanted marrow to survive and thrive (15). Prognostic scheme included three variables all related to iron burden, namely, quality of chelation received for the entire life before transplantation, hepatomegaly; and the presence of liver fibrosis at pre transplant hepatic biopsy examination. These variables stratified patients into three groups based on them having none, or one/two, or all three of the risk factors. Overall survival and thalassemia-free survival were significantly different in the three groups: 94% and 87% in the low-risk group, 84% and 81% in the intermediate-risk group, and 70% and 58% in the high-risk group, respectively (9). Concerning mortality, and according to Pesario classification, mortality ranges from 5% in the risk class 1 up to 29% mortality in class 3 (7).

Subsequent studies suggested that the mortality associated with being in the worst prognostic class (class 3) could be reduced from 47% to 18% by using regimens containing less cyclophosphamide. However, the rejection rate with these regimens increased from 12% to 30% in patients with class 3 thalassemia aged younger than 17 years (14).

As to the stem cell source, the large majority of transplant centers continue to use bone marrow-derived HSC rather than peripheral blood-derived HSC (9). An HLA identical sibling is the donor of choice for patients requiring allogeneic HSCT. and is generally recommended in young low-risk patients with a matched related donor (1,7) this is because matched related sibling is associated with the least incidence of GVHD in correlation with incidence of graft failure among all type of transplantations. Clinical development of HSCT from alternative donors has been more challenging. It includes 3 possible approaches: matched unrelated donors, mismatched related donors, and unrelated cord blood (9):

1) HSCT from an unrelated voluntary donor is a feasible alternative provided that the donor is selected according to stringent HLA compatibility criteria. Experience has shown that by applying highly stringent criteria for donor selection, the outcome of HSCT is comparable to that obtained when the donor is a compatible sibling (7).

2) Haploidentical hemopoietic stem cell transplantation has been explored as an option for treating patients with leukemia who lack an HLA-identical sibling or parent donor. However, severe graft-versus-host disease (GVHD) and high graft failure/rejection rates have limited the application of this transplantation modality for patients with thalassemia. Medical Protocols that use high doses of T cell–depleted peripheral blood stem cells (PBSCs) and intensive pre transplantation conditioning regimens have helped to overcome these limitations. Haploidentical transplantation may extend this possibility to the 50% to 60% of the patients who lack a suitably matched familial donor or an HLA-identical unrelated donor. The presence of fetal cells in maternal blood and of maternal cells in fetal blood (fetomaternal microchimerism) suggests that immunological tolerance may exist between mother and offspring. Van Rood et al demonstrated a lower rate of acute GVHD in sibling transplants mismatched for non-inherited maternal antigens than in transplants mismatched for non-inherited paternal antigens (16).

3) Cord Blood: The potential benefits of umbilical cord blood (UCB) treatment are the low risk of viral contamination from a graft, the decreased incidence of acute and chronic GVHD, and easier accessibility. The small size or small number of stem cells in the UBC collection relative to the number required for engraftment are probably the main causes of failure of UCB transplantation; therefore, this procedure is being used mainly in pediatric patients. Some patients have received UCB transplantation in combination with bone marrow or peripheral progenitor cells. The use of UCB from unrelated donors has resulted in only 77% survival and 65% event-free survival. In these cases, it is suggested to store the patient's own bone marrow in case of a graft failure (back- up procedure). The experience with UCB transplantation is encouraging, but additional data are required for definitive conclusions (6).

Methods

In developing countries, Patients are facing various problems regarding establishing a long life stable treatment strategy. This mainly comes due to two factors. Firstly is lack of financial resources for demanded treatments. And the other cause is lack of adequate number of caring centers that can provide the health care services for those patients. Accordingly, we can say that In spite of significant progress in supportive care, which may extend life expectancy well into adulthood, most patients in low to middle income areas, where thalassemia is most prevalent, do not survive beyond 20 years of age (1) And according to this result, we calculated the total costs of treatment per individual in 2 different countries assuming that the patient age is in the middle of the second decade with suggested weight of 35 Kg in regards to adolescent growth percentiles (17). We calculated the cost Basic treatments, namely transfusions and chelations, over one year. In respect to transfusion, it was estimated by 1-2 units of packed red blood cells (RBCs) per month. And as to Chelators, prices were determined according to an estimated dose of 40mg/Kg/day along 5 days per week for desferal, 75mg/ks/day for deferiprone and finally an approximate dose of 30mg/Kg/day for deferasirox (3,18).

Discussion

Hemoglobinophathies are the main hereditary diseases in Albania. Albania is a country with the high endemic rate of beta thalassemia in which the frequency of the carriers of thalassemia in the country is estimated to be about 5- 8% of population, according to studies in different periods with no clear evidence about the presence

of preventive arrangements for thalassemia. Also, and according to data of the year 2000 from the University Hospital Center of Thalassemia centers (160 patients treated with thalassemia major), in 127 patients (79.4% of total) aged 2-14 years, .Till the year 2000, Albania had no patient with thalassemia major who could survive above the age of 24. A one year transfusion in Albania can cost from 450 to 900 euro. Albania is suffering from a serious transfusional problem, not only due to price of blood but also, and most importantly, due to lack of available blood products. This is considered to be a threatening problem for patients with thalassemia. In many cases, patients with rare group cannot receive blood transfusion for a long time, even when the level of Hb is 4-5g/dl values, giving rise to serious health complications, even for their death. Blood used in surgery provided by the families or relatives patients scheduled for operations and often for emergencies. In cases of emergency, the collected blood is tested for the presence of infectious agents by using rapid tests. Finally, it was reported that death at a young age is problematic issue for thalassemics there (19-20). Being considered as an european country, Chelator costs are extensively high for a financially overburdened family with a thalassemia child. The price of 1 year treatment with desferal, deferiprone and deferasirox is estimated to be 2450 euro, 7550 euro and 24, 500 euro respectively. Thus, total costs of treatment are very high and it is ranging between 2900 to 25, 400 euro. Till the current time there is no local BMT transplantation for thalassemia in Albania, All Albania Thalassemia cases are transplanted outside Albania, Referring to the data from the University Hospital Center thalassemia during last 10 years, and from a total of 275 patients, 20 have undergone Bone marrow transplantation abroad (20).

In Egypt, beta-thalassemia is the most common type with a carrier rate varying from 5.3 to > or =9% and a gene frequency of 0.03. So, it was estimated that 1,000/1.5 million per year live births will suffer from thalassemia disease in Egypt (total live births 1,936,205 in 2006). This means that beta-Thalassemia creates a social and financial burden for the patients' family and the Egyptian government. The high frequency of beta-thalassemia carriers with increasing rate of newly born cases is a pressing reason for the importance to develop prevention program for beta-thalassemia (or finding an alternative solution which is ideally Can be stem cell transplantation, especially in small age where transplant risk is minimal and success rates are high (21). This could prevent the huge psychological, social and financial burden on both the patient and his family due to this Long life chronic disease (13).

Regarding to the treatment finances, blood transfusions costs were calculated to be 500-1000 euros per year. As for chelation therapy costs, Desferrioxamine costs the patient around 750 euros per year, while deferiprone, which is represented by two different companies, is either 280 or 1000 euros. Finally, deferasirox comes to be the most expensive with total costs of 11, 300 euro per year. On the light of previous research, total costs of basic treatments are ranging between 780 to 12300 euro per year. Regarding transplantations, source of transplanted cells in Egypt is obtained either from BM or PBSC. Approximately 25–30% of patients who have siblings can be expected to have an HLA genotypically identical donor. This figure is somewhat higher, reaching up to 40% in our community owing to larger family size (13). However, Mahmoud et al., (13) could reach an overall and disease-free survival rates for â-thalassemia major patients post allogeneic SCT at are 90 and 85%, respectively, at a median follow-up of 3 years [61 patients] (13). However, still the Egyptian transplantation experience in thalassemia is not so successful to date. This is mainly due to lack of working specialized BMT centers for thalassemia. And as a result, thalassemia patinets have to wait in the long queue of transplant with priority comes after those of critical cases like leukemia. Accordingly, patients pass the suitable age of transplantations whilst still waiting and the

treatment toll of the chronic disease treatment cost is increased year by year **(**16).

Finally, and from current data, we can assume that the high frequency of beta-thalassemia carriers with increasing rate of newly born cases is a pressing reason for the importance to finding an alternative solution which is ideally can be stem cell transplantation, (especially in small age where transplant risk is minimal and success rates are high due to lesser number of transfusions in comparable to adult patients (13,21) Establishing transplantation centers in such countries could prevent the huge psychological, social and financial burden on both the patient and his family due to this Long life chronic disease.(13) Local centers is much more reliable than going abroad to do a transplant. This will prevent the high costs of transplantation in developed countries. In another study, the median cost of matched-related transplants in a local center in Pakistan, as an example of developing country, was only around 10,000 euro.

Conclusion

Current data suggests that transplant is the only cure for thalassemia to date. Accordingly, local supporting of the transplant centers for thalassemia patients could be a proper solution to overcome the problems of chronic long life treatment of thalassemia patients with all its problems namely, low quality of life, financial burden to the patient and governments and lack of adequate treatment centers to compromise the increasing number of thalassemia patients.

Acnowlegdment

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MEASUREMENT OF PHYSICAL ACTIVITY LEVEL IN EPIDEMIOLOGIC STUDIES

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ABSTRACT

In epidemiological studies, physical exercise is commonly assessed by a series of questions tapping the frequency, intensity, and duration of physical activities at work, leisure time physical exercise, and housework physical activity. In "modern" times, physical activity consists mostly of leisure-time physical exercise because levels of physical activity at work or at home are quite scarce. One of the main methods of assessment of leisure-time physical exercise consists of employment of the Minnesota leisure-time physical activity (LTPA) questionnaire, which measures leisure-time exercise by questions tapping the frequency, intensity, and duration of walking (for pleasure, shopping or chores), daily climbing of stairs, and up to three different sport activities, including number of months engaged over the year. The quantitative data from the physical exercise at leisure time are used to obtain scores of daily energy expenditure by the LTPA method – a standardized procedure which has been widely used in epidemiologic studies.

Keywords: energy expenditure, exercise, physical activity, leisure-time physical exercise, Minnesota leisure-time physical activity (LTPA) questionnaire.

In several population-based studies, physical exercise is assessed by a series of questions tapping the frequency, intensity, and duration of physical activities at work, leisure time physical exercise, and housework physical activity:

• ***Physical activity at work:*** is measured by a series of questions taping the frequency, intensity, and duration of physical exercise at work (working hours per week, average time of standing and walking at work, and hard/ demanding physical work such as lifting or carrying heavy loads), including also the walk on the way to work and back.

• ***Leisure time physical exercise:*** is measured by a series of questions tapping the frequency, intensity, and duration of physical activity during leisure time (walking for pleasure during the week and at the weekend, walks to perform visits, to shop, or to do chores, daily climbing of stairs, and three possible different sport activities over the year – for further details see Appendix 1). A summary question used for the leisure time activities is the so-called "sweat" question, where participants are asked whether they engage in a vigorous physical activity during leisure time lasting at least 20 minutes that leads to perspiration or shortness of breath, and the frequency of this exertion (Appendix 2).

• ***Housework physical activity:*** is measured by a series of questions tapping the frequency, intensity, and duration of housework physical exercise (gardening, housework such as home-maintenance, mopping the floor, cleaning windows, etc.).

The quantitative data from the three types of physical activities (i.e. physical exercise at work, at leisure time, and at home) are used to obtain scores of daily energy expenditure by the Minnesota leisure time questionnaire method – a standardized procedure which has been widely used in epidemiologic studies (1-6).

In "modern" times, physical activity consists mostly of leisure-time physical exercise because levels of physical activity at work or at home are quite scarce. Therefore, measurement of leisure-time physical activity is of paramount importance.

One of the main methods of assessment of leisure-time physical exercise consists of employment of the Minnesota leisure-time physical activity (LTPA) questionnaire (1), which measures leisure-time exercise by questions tapping the frequency, intensity, and duration of walking (for pleasure, shopping or chores), daily climbing of stairs, and up to three different sport activities, including number of months engaged over the year (for further details see Appendix 2). The quantitative data from the physical exercise at leisure time are used to obtain scores of daily energy expenditure by the LTPA method (1,7).

In order to obtain one single figure that could be compared in a continuous scale for every person's energy expenditure, the individual variables describing a person's physical activities (Appendix 2) need to be transferred into kcal-scores for every single activity and then added to form a total (overall) score. This is done using the activity metabolic index from the LTPA questionnaire (1). According to this instrument, each activity is given a certain intensity code which reflects energy expenditure in Kcal per minute. Individually varying basal metabolic rates are not taken into account; therefore, all results of energy expenditure (expressed in kcal per minute) are estimates. The energy expended in a specific activity is estimated as the product of the intensity code ("I") and the duration of exercise in minutes over a year ("D").

In the Minnesota LTPA questionnaire, the ratio of the metabolic rate during work to the basal metabolic rate provided an intensity code. The following equation expresses the relationship between "D" (aggregated duration of a given exercise), "M" (number of months per year for

a given activity), and "T" (average time for a given activity for each month, which is a product of monthly frequency with time per occasion for a given activity):

$$D = M * T$$

The overall Activity Metabolic Index (AMI) for a whole year is, therefore, calculated as follows:

$$\text{Total AMI} = \quad I * D)$$

In order to obtain a daily score for each individual, as is the case in many epidemiological studies (because the dietary calorie intake is also expressed usually on a daily basis), the total AMI is divided by 365.

Table 1. Intensity codes for selected physical activities

Activity	Intensity code (Kcal/min.)
Types of sport	
Swimming (at pool or beach)	6,0
Home exercise/aerobics/fitness	4,5
Basketball (warming-up, i.e. non-game)	6,0
Jogging/running	7
Weight lifting/muscle building	3,0
Bicycling to work and/or pleasure	4,0
Light athletics (home exercise)	4,0
Soccer	7,0
Stairs	
Using stairs (one flight of stairs = 30 sec.)	4,0
Walking	
At slow pace	3,0
At moderate pace	3,5
At fast pace	4,0

Appendix 1. Measurement of leisure time physical activity

1. Do you engage in your leisure-time, regularly in sport activities or any physical activity:

Yes ☐ No ☐

If "***Yes***":

What is the main physical activity you engage in?	**On average, how many hours a week do you do it?**	**How many months a year do you engage in this physical activity?**	**What do you assess/estimate to be the intensity of the exercise?**
_____	a) less than 1h b) 1 to less than 2h c) 2 to less than 3h d) 3 to less than 4h e) 4h or more	_____	a. Mild (don't feel at all tired) b. Moderate c. Hard (heavy breathing)

2. In your spare time, do you walk for the sake of walking (at least once a week):

Yes ☐ No ☐

If "***Yes***": a) How many times a week? _____
b) On average, for how long (time)? _____
c) At what speed: Brisk/fast ☐ Moderate ☐ Slow ☐

3. In your spare time, do you walk to visit, to shop, to do chores, etc.: Yes ☐ No ☐

If "***Yes***": a) How many times a week? _____
b) Average time each walk: _____
c) At what speed: Brisk/fast ☐ Moderate ☐ Slow ☐

Additional physical activity/exercise at leisure/spare time

1. Do you engage in an additional physical activity: Yes ☐ No ☐

If "***Yes***":

What is the main physical activity you engage in?	**On average, how many hours a week do you do it?**	**How many months a year do you engage in this physical activity?**	**What do you assess/estimate to be the intensity of the exercise?**
_____	a) less than 1h b) 1 to less than 2h c) 2 to less than 3h d) 3 to less than 4h e) 4h or more	_____	a. Mild (don't feel at all tired) b. Moderate c. Hard (heavy breathing)

2. Beside above, do you engage in a supplementary physical activity: Yes ☐ No ☐

If "***Yes***":

What is the main physical activity you engage in?	**On average, how many hours a week do you do it?**	**How many months a year do you engage in this physical activity?**	**What do you assess/estimate to be the intensity of the exercise?**
_____	a) less than 1h b) 1 to less than 2h c) 2 to less than 3h d) 3 to less than 4h e) 4h or more	_____	a. Mild (don't feel at all tired) b. Moderate c. Hard (heavy breathing)

2. Beside above, do you engage in a supplementary physical activity: Yes ☐ No ☐

If "***Yes***":

What is the main physical activity you engage in?	On average, how many hours a week do you do it?	How many months a year do you engage in this physical activity?	What do you assess/estimate to be the intensity of the exercise?
_____	a) less than 1h b) 1 to less than 2h c) 2 to less than 3h d) 3 to less than 4h e) 4h or more	_____	a. Mild (don't feel at all tired) b. Moderate c. Hard (heavy breathing)

3. To sum up your activity during your leisure time, do you engage in vigorous physical activity that lasts at least 20 min. and causes you to breath heavily and to sweat:

Yes ☐ No ☐

4. How frequently do you engage in this activity:

≥4 times/week ☐ 2-3/week ☐ 1/week ☐

2-3/month ☐ 1/month ☐ <1/month ☐

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PREVALENCE OF ARTHRITIS AND OTHER RHEUMATIC CONDITIONS: A LITERATURE REVIEW

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Abstract

This paper summarizes the current evidence on the estimates of the prevalence of arthritis and other rheumatic conditions in selected industrialized countries. Arthritis and other rheumatic conditions continue to be a considerable and growing public health problem not only in industrialized/developed societies, but also in developing/transitional countries. When reporting on estimates, however, a clear distinction should be made for the overall rates of arthritis, rheumatoid arthritis, juvenile arthritis, the spondylarthritides, systemic lupus erythematosus, and the systemic sclerosis. A common global challenge is to provide a single source for the best available estimates of different rheumatic conditions in various regions including the developed countries.

The evidence from Albania is scarce. Estimates for many specific rheumatic conditions rely on a few, anecdotic and small studies of questionable generalizability to the overall Albanian population. Large and robust studies are needed in Albania to provide valid and reliable estimates on the incidence and prevalence of arthritis and other rheumatic conditions addressing the understudied Albanian population in epidemiological transition.

Keywords: arthritis, rheumatoid arthritis, rheumatic conditions, rheumatology.

Estimates of rheumatoid conditions in selected countries

In USA adults, arthritis is the leading cause of disability (1) and is among the leading conditions causing work limitations (2,3). Over the next 25 years the number of people affected and the social impact of doctor-diagnosed arthritis are projected to increase by 40% in the US (3). Estimating the burden in the US population of the various rheumatic conditions that comprise arthritis is important for understanding their current and potential future impact on the health care and public health systems (3). Equally important is identifying the gaps in our understanding of burden. Thus, a recent review reported that more than 21% of US adults (46.4 million persons) had self-reported doctor-diagnosed arthritis (3). The authors of this comprehensive review estimated that rheumatoid arthritis affected 1.3 million adults, which indicates a decrease from the estimate of 2.1 million for the year 1995 (3). Furthermore, the review estimated that juvenile arthritis affected 294,000 US children, spondylarthritides affected from 0.6 million to 2.4 million adults, systemic lupus erythematosus affected from 161,000 to 322,000 adults, and systemic sclerosis affected 49,000 adults (3).

As for the UK, more than 6 million people have painful osteoarthritis in one or both knees (4). Prevalence increases with age with 1 in 5 adults aged 50-59 years to almost 1 in every 2 adults aged 80+ years having painful osteoarthritis in one or both knees (4). More than 650,000 in the UK have painful osteoarthritis in one or both hips, three-quarters of whom are aged over 65 years (4). More than 1 million adults consult their GP each year with osteoarthritis (4).

In Germany, a study on the prevalence of inflammatory arthritis in different subgroups of the population reported an overall prevalence of 3.4% (5). The prevalence of inflammatory arthritis was found to be significantly higher in women, the over-50 year olds, lower-income groups, and habitual smokers (5). Furthermore, individuals with inflammatory arthritis had a higher rate of various co-morbidities including osteoporosis, thyroid disease, chronic bronchial disease, hypertension, and elevated blood lipids (5).

Evidence from Albania

The evidence from Albania with regard to arthritis and/or other rheumatoid conditions is scarce. Estimates for many specific rheumatic conditions rely on a few, anecdotic and small studies of questionable generalizability to the overall Albanian population.

Figure 1 presents the trends in hospital discharges

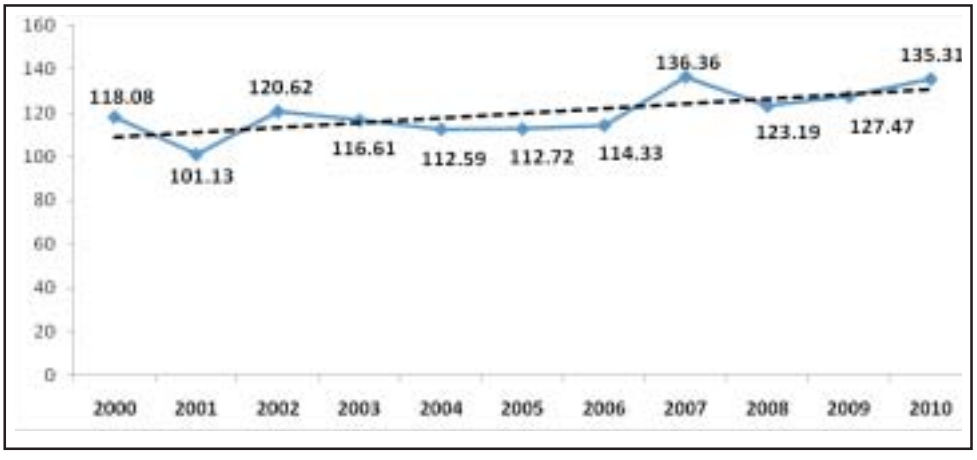

Figure 1. Hospital discharges for musculoskeletal system and connective tissue diseases per 100,000 population in Albania, 2000-2010

for musculoskeletal system and connective tissue diseases per 100,000 population in Albania for the period 2000-2010 (6). Overall, there is an increase in the hospital discharge rate from 118.1 (per 100,000 population) in 2000 to 135.3 in 2010. However, these data do not permit a detailed assessment of the share of rheumatic diseases and, therefore, should be interpreted with caution.

In conclusion, large and robust studies are needed in Albania to provide valid and reliable estimates on the incidence and prevalence of arthritis and other rheumatic conditions addressing the understudied Albanian population in epidemiological transition.

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COLONIC MALIGNANT MELANOMA - A RARE CASE OF PRIMARY MALIGNANT MELANOMA OF RECTUM TREATED WITH ABDOMINO-PERINEAL RESECTION AND ADJUVANT CHEMO-RADIATION

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Abstract

Introduction: Gastrointestinal malignant melanomas, either primary or metastatic, are rare and overlooked tumors. There is also controversy regarding the actual existence of primary melanoma in the gastrointestinal tract apart from the esophagus and anorectal regions, where melanocytes normally exist. A case of malignant melanoma in the rectum is presented.
Methods: We examined a 68- year-old male patient who presented to the hospital for a massive rectal bleeding. The difficulties in the diagnostic course are discussed, together with a literature review on distinguishing a primary mucosal melanoma from a metastatic one from an unknown primary tumor.
Results: Histologically, tumor cells were arranged in compact nests or wide cords surrounded by fibrous stroma. The tumor cells had pleomorphic nuclei and quite rich cytoplasm; tumor cells contained apparent brown pigment, most were found to be positive for HMB-45 and Melan-A. The possibility of a metastatic lesion was considered. The patient had not a history of a pathologically examined melanoma; there was no evidence of either cutaneous or ocular primary melanoma at the time of diagnosis.
Conclusions: the histologic diagnosis of malignant melanoma as either primary or metastatic is challenging. Suspicion should arise especially when the histologic picture fails to properly fit an ordinary intestinal adenocarcinoma. When the diagnosis is established, the case must be searched thoroughly to determine the presence or not of a primary lesion, reserving the possibility of metastasis from a regressed primary malignant melanoma.

Introduction

Malignant melanomas account for 1%–3% of all malignant tumors of the gastrointestinal (GI) tract (1). They may arise throughout the length of the alimentary tract from the esophagus to the anal canal; however, the majority of these tumors are secondary lesions representing metastatic spread of a primary tumor (2). Primary malignant melanoma occurs most often in the skin and much less frequently in the choroid layer of the eyes, under the nail, in the leptomeninges, oral cavity, nasal mucosa, pharynx, esophagus, bronchus, and vaginal or anorectal mucosa (3).

Malignant melanoma is the most common malignancy having the potential to metastasize to the GI tract (4).

Primary intestinal malignant melanoma, though extremely rare, has been reported. However, the presence of primary malignant melanoma in the GI tract other than the esophagus and rectum, where melanocytes normally exist, is still controversial (5-6). We report a case of solitary malignant melanoma arising in the rectum 2 cm from anorectal junction.

Case report

A 68 -year-old man, previously fit and well, presented to the emergency department following a massive rectal bleeding. Rectal examination revealed an anterior fleshy mass at 2 cm from the anal verge and just above the anorectal angle. When questioned, the patient said he had been bleeding intermittently for 3 months but without any pain or change in bowel habit. He was a non-smoker with an unremarkable medical history.

Colonoscopy demonstrated a polypoid pigmented lesion at the anorectal angle. Biopsy demonstrated malignant cells with pleomorphic nuclei and abundant melanin in the cytoplasm. Computed tomography of the thorax, abdomen and pelvis and magnetic resonance imaging of the pelvis showed well-preserved anorectal fat planes and no evidence of metastasis. Dermatological and ophthalmological examinations revealed no evidence of a cutaneous or an ocular primary lesion. Immunohistochemical_confirmation was obtained with cellular positivity for HMB 45 and melan-A antigens. A macroscopic/endoscopic image of the specimen is shown in figures 1-2.

Histologically, tumor cells were arranged in nests or wide cords surrounded by fibrous stroma (Figure 3,4,5). The tumor cells had pleomorphic nuclei and quite rich cytoplasm. An immunohistochemical panel including : Melan-A, HMB-45, Ki 67, Chromogranin, Synaptophysin, Pan CK mnf which was applied to rule out a primary adenocarcinoma failed to prove its origin. The tumor cells contained apparent brown pigment and most of the tumor cells were found to be positive for Melan-A and HMB-45 thus, the tumor was diagnosed as "malignant melanoma".

The possibility of a metastatic lesion was considered and the patient was referred for detailed dermatologic and ophthalmologic examination, which revealed no lesions suspicious for primary melanoma. He had no evidence of ocular primary lesion or any other lesion in any other location.

Figure 1-2. Colonoscopy

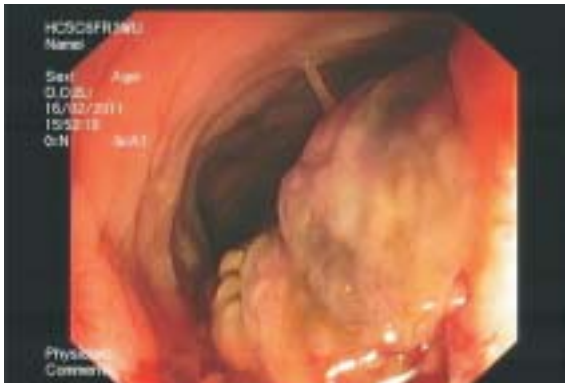


Figure 2.

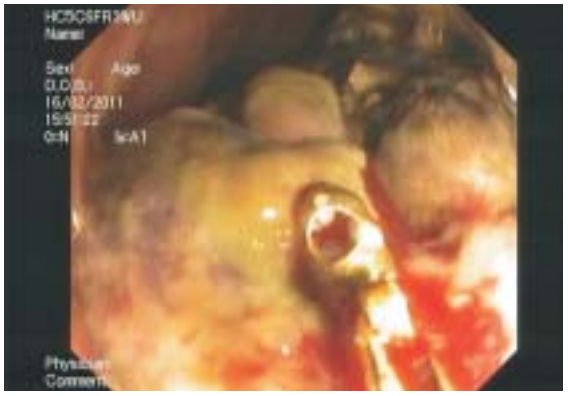


Figure 3-5. H-E Stain

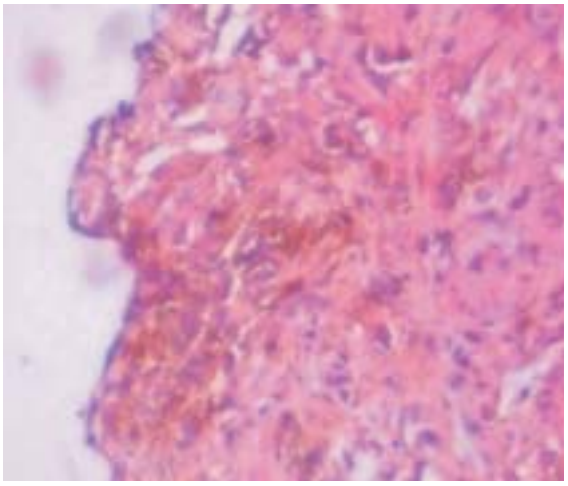
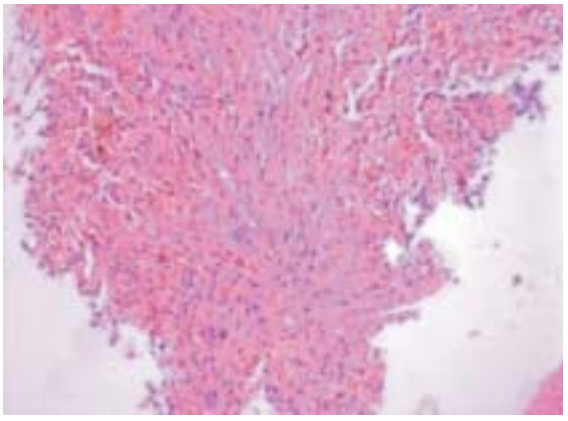


Figure 5.

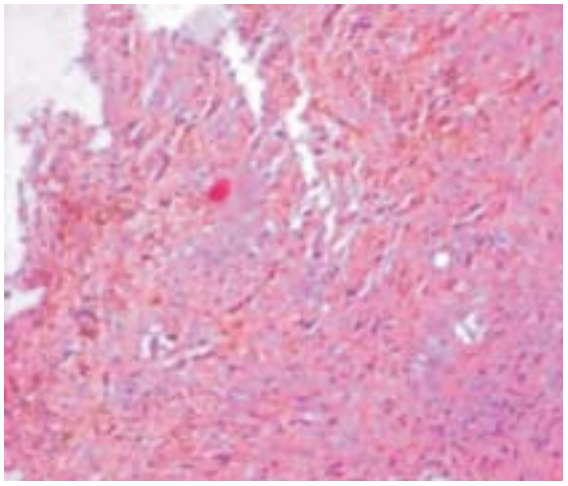


Discussion

Primary GI malignant melanoma generally occurs in the esophagus and anorectal regions, where melanocytes normally exist. However, the existence of primary melanoma of the large bowel is a controversial topic. There are only a few cases reported to date as a "primary" colonic melanoma (5, 6- 11).

The majority of GI malignant melanomas are secondary lesions representing metastatic spread of a primary tumor (2). Metastases to the GI tract are quite common. In autopsy cases, they are most frequently seen in the small intestines (58%), followed by the colon (22%), stomach (20%), rectum (5%), and esophagus (4%) (12). The time

Figure 4.



interval from the initial presentation of the melanoma to the development of GI involvement is approximately 40 months (13, 14). Despite their frequency in autopsy series, clinical diagnosis is rare unfortunately, probably as a result of nonspecific symptoms, such as bleeding, pain, obstruction, and weight loss, which are not attributed to a metastatic spread at first.

Distinguishing between a primary mucosal melanoma and a metastatic melanoma to the GI tract from an unknown or regressed cutaneous primary melanoma can be difficult, if not impossible.

According to the criteria of Sachs et al. (15), primary intestinal melanoma: 1)is a solitary lesion, 2) has no metastatic lesion at other organs, 3) has precursor

lesions or melanosis histologically, and 4) has a disease-free survival period of at least 12 months after diagnosis (15).

From a clinical point of view, both primary mucosal malignant melanoma and metastatic malignant melanoma are more aggressive than their cutaneous counterparts and have worse prognosis. Median survival for those patients is 4-6 months. The relatively high five-year survival rate is 10% (15, 16). Primary treatment for cutaneous, head and neck malignant melanoma is an extensive and curative surgery, followed by

postoperative radiation therapy, chemotherapy and immunotherapy for microscopic or macroscopic residual disease or nodal involvement (17).

Aggressive surgical resection is an essential event in the presence of metastasis to the GI tract, since surgery is not only palliative but also affects the prognosis (from 23 to 48 months) (15, 16). However, as primary mucosal melanomas are exceedingly rare, there are no randomized clinical trials comparing the efficacy of the various treatment modalities. Regardless of the therapy used, it is likely that the prognosis is grave (17). In the presented case, the tumor was a solitary lesion and the patient neither had a primary melanoma in other organs.

In conclusion, the histologic diagnosis of malignant melanoma as either primary or metastatic is challenging. Thus, not only pathologists, but also clinicians should remember the possibility of malignant melanoma when a case is admitted with colonic mass. Suspicion should arise especially when the histologic picture fails to properly fit an ordinary intestinal adenocarcinoma.

On that occasion, the case should be evaluated using a panel of antibodies, including malignant melanoma markers or even with molecular genetic testing to rule out a CCS, along with the detailed clinical history. When the diagnosis is established, the case must be searched thoroughly to determine the presence or not of a primary lesion, reserving the possibility of metastasis from a regressed primary malignant melanoma.

Authors of this article have no conflict of interest to declare.

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PRIMARY OMENTAL TORSION: A RARE CASE OF OMENTAL TORSION WITHOUT PREVIOUS SURGICAL HISTORY

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Abstract

Introduction: Omental torsion is a rare cause of acute abdomen. Most often it presents with sign and symptoms of acute appendicitis. It is seldom considered in the differential diagnosis preoperatively based on clinical findings. The diagnosis is only established during surgery.
Methods: We present a case of omental torsion in a 32 years old male patient who was presented with findings suggestive of appendicular perforation and underwent emergency laparotomy.
Results: The patient complained of abdominal pain. After two days, the symptoms had increased in severity in the last few hours. At laparotomy, the surgeons observed torsion of the right part of the omentum, which then was removed. The pathologist confirmed the diagnosis of omental torsion.
Conclusions: In the majority of cases, the surgical removal of the diseased omentum remains the treatment of choice. Patients with uncomplicated omental torsion can be safely managed with conservative treatment.

Keywords: Omentum, Torsion, Abdominal pain

Introduction

Omental torsion is a rare cause of acute abdomen. When the greater omentum is twisted around its axis, perfusion defects and vascular impairment of the organ are possible. As a result, different pathological modifications are possible, from simple edema to ischemia and gangrene of the omentum (1). Omental torsion can be either primary (idiopathic) or secondary, depending on the predisposing factors that cause it. Primary torsion of the omentum was first described in 1899 (2). However, very few cases have been reported in adults (3) and children ([4-8). Omental torsion is responsible for 0.1% of laparotomies performed for acute appendicitis in children (7). This report describes one case of a male adult who was presented with acute abdomen and in whom omental torsion was the definitive surgical diagnosis.

Case report

A 32-year-old man came to the Emergency Department of University Central Military Hospital (Tirana) complaining of abdominal pain. The pain, which started 2 days earlier, was constant and mainly located over the upper abdomen; the symptoms had increased in severity in the last few hours. The patient also presented with nausea, vomiting and anorexia. His medical history revealed untreated irritable bowel syndrome but no previous surgical history. On physical examination, tenderness over the upper abdominal area was recognized with rebound and guarding. A biochemical blood analysis revealed leukocytosis (13 000 leukocytes/ mm^3). All other laboratory tests were normal. With an incorrect diagnosis of appendicitis, the patient underwent a laparotomy via a midline incision. At laparotomy, the surgeons observed torsion of the right part of the omentum that was twisted several times around its long axis in a counter clockwise manner (Figure 1). The omentum was removed (Figure 2), the postoperative recovery of the patient was uneventful and he was discharged 2 days later. The pathologist confirmed the diagnosis of omental torsion.

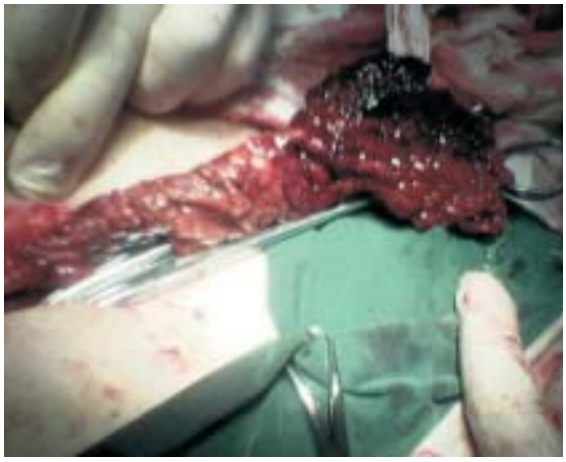

Figure 1: Right part of the omentum that was twisted several times around its long axis

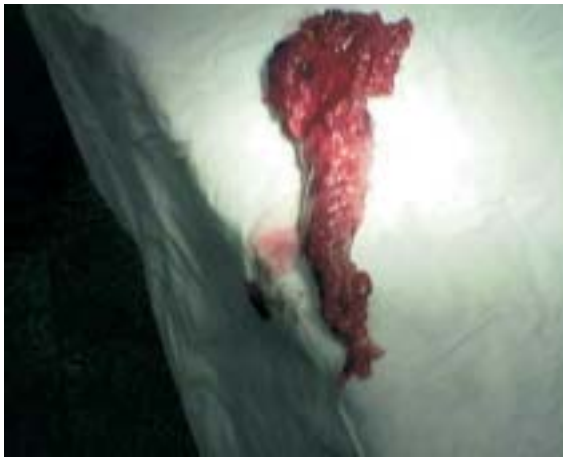

Figure 2: Omentum removed, showing ischemia and necrosis

Discussion

Omental torsion is a rare condition and difficult to diagnose preoperatively. It can mimic various other causes of acute abdomen; surgeons should always consider it in the differential diagnosis of acute abdominal pain. Unfortunately, the symptoms and clinical findings do not present in any characteristic pattern that suggests the diagnosis. The differential diagnosis includes acute appendicitis, acute cholecystitis, cecal diverticulitis and other diseases (1,9). Omental torsion has an

incidence of 0.0016% - 0.37% when compared with appendicitis (ratio of less than 4 cases per 1000 cases of appendicitis) (8,10,11).

The correct etiology is not clear in idiopathic omental torsion. No pathological findings can be found in the abdomen of the patient; sometimes surgeons observe a large and mobile omentum which has been rotated one or more times around a fixed spot, usually the right epiploic artery (1,9).

Infarction of the right side of the omentum is more frequent because of its greater length and mobility (12). Other authors explain this as being due to a different embryological origin of the right side of omentum with congenitally anomalous fragile blood vessels (13).

"Bifid omentum" is an accessory omentum originating from a narrow route and excessive adipose tissue accumulation on the omentum.

Obesity has been identified as a predisposing factor. One study documents that almost 70% of patients with omental torsion are obese (14,15). In children, obesity is considered an important factor in omental torsion, especially when the body mass index is above the 95th percentile (9,16). Precipitating factors leading to an increased risk for omental torsion include trauma, coughing, a sudden change of body position, hyperperistalsis after a copious meal, or compression between the liver and the abdominal wall (1,17). In secondary omental torsion, some associated abdominal pathology has been frequently observed such as cysts, tumors, inflammation, prior surgery or hernias. These conditions increase abdominal pressure as in the case of heavy exercise, sneezing or coughing and the occupational use of vibrating tools. Primary omental torsion is difficult to diagnose preoperatively and an accurate preoperative diagnosis is reported in only 0.6%-4.8% of all cases (17). Clinical presentations vary; they include a sudden increase of pain on the right side enhanced with abdominal movements, with signs of peritoneal irritation in the right upper quadrant. If the omentum involved is a large part, a mass might be palpable. Other symptoms may be present, such as nausea and vomiting, fever and leukocytosis. Many authors have stressed the importance of imaging in the diagnosis of omental torsion. Abdominal ultrasound is important to exclude acute cholecystitis and shows an ovoid or cake-like hyperechoic mass adherent to the peritoneum located in the umbilical region or anterolaterally to the right half of the colon (12,18). Doppler sonography sometimes shows vessels within the mass and peripheral hyperaemia (19). CT scans play an important role in the diagnosis of torsion of the greater omentum (17,20,21). Omental torsion can be easily differentiated from acute cholecystitis, appendicitis and cecum diverticulitis which have different characteristics. In the case of omental torsion, the CT-scan shows an infarcted omentum as an area of high-attenuated fat containing hyperattenuated streaks just beneath the parietal peritoneum with thickening of the overlying anterior abdominal wall (20). Another finding can be a whirling pattern of the mesentery or fluid accumulation within the abdomen. Unfortunately, all these findings can be observed in various other conditions, such as in lipoma, liposarcoma, angiomyolipoma, teratoma, mesenteric lipodystrophy, pseudomyxoma peritonei, epiploic appendagitis, segmental infarction of the omentum and intestinal volvulus (20). To make the correct diagnosis, some authors recommend laparoscopy as the diagnostic and therapeutic method of choice in cases of omental torsion (10, 22-24). In many reports of individual cases as well as larger series of patients with omental torsion, the diagnosis was mainly based on CT findings and the treatment was frequently conservative. Miguel Perelló et al (25) reviewed six patients who were diagnosed with primary omental torsion based on CT scans and thereafter underwent conservative treatment. In addition, Abadir et al (26) reported that 12 of 15 patients who had primary omental torsion were diagnosed using a CT scan and were managed without surgery. In our case, no predisposing factors could be identified. Acute appendicitis was the initial clinical

possibility. The CT findings were not diagnostic and the diagnosis was finally established intraoperatively. Traditionally, the standard treatment for omental torsion is a resection of the involved segment of omentum (4). However, with the success of imaging tools there are many reported cases of omental torsion that have been successfully managed by conservative treatment, especially in patients with no associated complications (10, 21, 24-27).

In conclusion, primary omental torsion appears with a wide variety of clinical manifestations. It can mimic various other causes of acute abdomen; surgeons should always consider it in the differential diagnosis of acute abdominal pain. A preoperative diagnosis in most cases is difficult. For an early preoperative diagnosis, a high index of suspicion is required as well as abdominal CT scans. In the majority of cases, the surgical removal of the diseased omentum remains the treatment of choice. Patients with uncomplicated omental torsion can be safely managed with conservative treatment.

Authors of this article have no conflict of interest to declare.

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