QUALITY OF LIFE AND WELL-BEING: COMPARISON BETWEEN FIRST EPISODE PSYCHOSIS AND ANXIETY DISORDERS

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REZUMAT

Obiective: Evaluarea calității vieții, a suportului social și al bunăstării psihologice în două categorii de tulburări psihiatrice diferite – primul episod de psihoză și tulburările anxioase. Cu toate ca medicația psihotropă se corelează cu ameliorarea simptomatologiei, deteriorarea funcțională și socială sunt parametri importanți care persistă în timp, chiar și după remisiunea simptomatologiei. O abordare holistică a conceptului de funcționalitate implică noțiuni precum: calitatea vieții, suportul social și bunăstarea psihologică. **Material și metode:** În acest studiu au fost selectați 39 de pacienți diagnosticați cu prim episod de psihoză și 41 de pacienți diagnosticați cu tulburări anxioase conform criteriilor ICD-10. Pacienții au fost internați în Clinica Psihiatrică Timișoara în anul 2009. Evaluările au fost făcute folosind scalele PANSS, HAM-A-17, QLS, SSQ și SPWB. **Rezultate:** Deși total diferite din punct de vedere al tipului patologiei, ambele grupuri studiate au avut rezultate similare. Calitatea vieții, suportul social și bunăstarea psihologică sunt constructe inrudite, dar distincte. **Concluzii:** Managementul terapeutic este reprezentat de tratamentul medicamentos dar și de o abordare psihoterapeutică, "terapia bunăstării", pentru o viața traită corespunzator.

Cuvinte cheie: primul episod psihotic, tulburări anxioase, calitatea vieții, suport social, bunăstare psihică

ABSTRACT

Objectives: Assessment of quality of life (QOL), social support (SS) and psychological well-being (PWB) in two different psychiatric disorders – first psychosis episode and anxiety disorders. Despite psychotropic medication which correlates to symptom reduction, social and functional impairment are important parameters which persist in time, even when pathology has remitted. A holistic approach of the functionality concept implies notions such as: quality of life (QOL), social support (SS), psychological well-being (PWB). **Material and methods:** For this study, 39 patients diagnosed with first episode psychosis (FEP) and 41 patients diagnosed with anxiety disorders, according to ICD-10 criteria, were selected. The patients were hospitalized in the Timisoara Psychiatric Clinic in 2009.

Assessments were made by using the PANSS, HAM-A-17, QLS, SSQ and SPWB scales. **Results:** Although entirely different where the type of pathology is concerned, both studied groups showed similar results. QOL, SS and PWB are related but distinct constructs. **Conclusion:** The therapeutic management includes medication as well as a psychotherapeutic approach, "well-being therapy", for an adequate living.

Keywords: first psychosis episode, anxiety disorders, quality of life, social support, psychological well-being

INTRODUCTION

Despite the efficacy of psychotropic medication for symptom reduction, many individuals experience social and functional impairment which persist in time, even when pathology has remitted. The process of recovery emphasizes optimism and recovery of active participation in daily life [1,2]. In order to achieve a more holistic approach of the concept, the necessity to evaluate different aspects of functionality remains.

Quality of life (QOL) [3] provides a deeper insight into the satisfaction of patients who are being treated, apart from the clinician's expectations. described QOL is bv encompassing the domains of physical, psychological, social relationships and the environment [4]. A better understanding of these determinants is needed in order to provide better treatment and care for patients. QOL can also have a broad understanding by which the construct can be assessed by both objective and subjective indicators. Studies have suggested that patients recently experiencing a psychotic episode have a decreased QOL [5] revealed by both subjective and objective indicators [6-8]. Poor QOL [9] has been found to be associated with high levels of negative symptoms as well as depressive symptoms and unemployment. One should expect that patients with anxiety disorders should have a higher QOL and lower levels of association with symptoms. Also, the use of this construct is expected to be problematic in a psychotic population but much easier to apply in a neurotic population (anxiety disorders). This could be due to different perspectives of understanding subjective and objective QOL indicators between the two types of population. On the other hand, QOL measurements that use objective indicators fail to adequately capture the subjective experience of satisfaction, fulfillment and well-being that are entirely included in the process of recovery from a disorder. Another concept involved in the recovery process is social support (SS) [10].

Though different, QOL and SS are interconnected, both influencing the disease course, prognostic and recovery. The construct of psychological well-being (PWB) [11] includes aspects of positive mental health and wellness that are not adequately assessed via symptom inventories or measures. The multidimensional concept of psychological well-being underlines the importance of reaching individual potential by values such as success, employment and deep personal relationships [12]. The concept suggests that these positive aspects of mental health do not represent merely the absence of an illness, but rather the presence of assets that may play an important restorative and protective role in one's life [13]. Low wellbeing can be understood as a vulnerability factor while high-optimal well-being as a toll to full recovery from mental illness.

The aim of the study is to evaluate quality of life (QOL), social support (SS) and psychological well-being (PWB) (bv analyzing both similarities and differences) in two different psychiatric disorders: first episode psychosis (FEP) and anxiety disorders (AD).

MATERIALS AND METHODS

The group of first episode psychosis consists of 45 patients which have been diagnosed with a schizophrenia-spectrum disorder (Schizophrenia, schizophrenia-like acute psychotic disorder, persistent delusional disorder) according to ICD-10 criteria, in the year 2009. At onset, most of them (70%) were admitted in the hospital but 30 % were Even if 45% of them out-patients. experienced a relapse during the following 2 years, at the time of the study (2010) the patients had to have disease insight and to be at complete or partial remission (several non-specific symptoms) or in a residual stage not interfering with disease insight. The participants also had to be on medication and under active psychiatric longitudinal supervision. Due to these inclusion criteria an assessment was possible in only 39 patients.

The anxiety disorder group consisted of 41 patients who, in the year 2009, had been diagnosed with: generalized anxiety disorder, panic disorder, specific phobias, social phobia. Patients have been on medication for 70% of the one year period, still being under psychiatric surveillance. For data collection, medical records and interviews with the patients at the time of the assessment were used. An agreement was obtained from the medical therapist and from the patients.

Symptomatology was assessed in the FEP group by using the Positive and Negative

Syndrome Scale (PANSS) [14] generating three scaled scores (positive, negative and general) and a total score. In the anxiety group HAM-A was used to evaluate the patients. In both groups, insight was assessed by the item G12 of PANSS. Quality of life (QOL) was assessed by the Quality of Life Scale (QLS) [15]. This assessment is a semi-structured interview comprising 21 items rated on a scale from 0 to 6 (lower scores reflect greater impairments in functioning). In the current study we used only two of the four subscales, namely: interpersonal relation and instrumental role.

Social support was assessed by an openended questionnaire elaborated by the author which included three final states: positive effectively perceived SS, present SS but with minor implication and no SS.

Psychological well-being was analyzed by using the Environmental Mastery and Purpose in Life Subscales of the SPWB [16]. Participants are asked to rate their agreement with each statement using a 6point scale: 0-strongly disagree, 6 strongly agree.

RESULTS

Demographic information about the studied groups (Table 1) show a higher mean age in the anxiety disorders group than in the first episode psychosis group (35.7 vs. 28.4 years). In both groups males are predominant.

	First episode psychosis group (n=39) M(SD)	Anxiety disorder group (n=41) M(SD)
Age (years)	28.4 ±9.8	35.7 ± 7.2
Male	24 (59.1%)	23 (58.4%)
Female	15 (40.9%)	18 (41.6%)

Table 1. Demographic information

Clinical outcome in first episode psychosis (Table 2) was assessed by using PANSS.

	First psychotic episode group (n=39) M(SD)	Anxiety disorder group (n=41) M(SD)
PANNS – positive	12.90 (5.15)	-
sub-score		
PANNS –	14.48 (5.00)	-
negative sub-score		
PANNS – general	28.07 (7.10)	-
score		
PANNS – total	55.45 (14.01)	-
score		
HAM-A – total	_	18.27 (6.43)
score		

Table 2. Clinical outcome

Sub-score distribution reflects a mild symptom intensity. The same mild intensity of the symptoms was observed in the anxiety disorders group by using HAM-A (total score 18.27).

In both groups (Table 3) functional outcome was assessed from three perspectives:

quality of life, psychological well-being and social support. All three perspectives are indicators of global functioning of the person, taking into consideration the objective and subjective point of view of the person's relationship system.

Table 3. Functional outcome

	First episode of psychosis group	Anxiety disorder group
	(n=39) M(SD)	(n=41) M(SD)
QLS	43.09 (10.8)	55.12 (7.91)
SPWB	116.01 (23.09)	131.87 (14.58)
	n=21 → 3	n=16 → 3
SS	n=10 → 2	n=19 → 2
	n=8 → 1	$n=6 \rightarrow 1$

Correlations between outcome variables in the first episode psychosis are presented in Table 4 and for the anxiety disorders group in Table 5.

	QLS	SPWB	SS	PANNS	PANNS	PANNS	PANNS
				POS.	NEG.	GEN.	TOTAL
QLS	-	-	-	-0.29	-0.58**	-0.64**	-0.66**
SPWB	0.36*	-	0.45**	-0.21	0.03	-0.33*	-0.22
SS	0.47**	-	-	-0.49**	-0.18	-0.51**	-0.54**
POZ	-	-	-	-	0.15	0.66**	0.77**
NEG	-	-	-	-	-	0.57**	0.70**
GEN	_	_	_	-	-	_	0.96**
TOTAL	_	_	-	-	_	-	-

Table 4. Correlation between outcome variables - first psychotic episode group

*p < 0.05; ** p < 0.01

Table 5. Correlation between outcome variables – anxiety group

	QLS	SPWB	SS	HAM-A-17	
QLS	-	-	-	-0.65**	
SPWB	0.48**	-	-	-0.52**	
SS	0.38*	-	-	-0.49**	
HAM-A-17	-	-	-	-	

*p < 0.05; ** p < 0.01

Figures show that the two groups do not differ consistently, according to the study's purpose. Psychological well-being, quality of life and social support are interconnected constructs (significant positive correlations) in both nosological groups.

Data regarding symptomatology support the idea that functioning and level of living are more than symptoms. There was an important effect of gender (females better performance) in both study groups.

DISCUSSIONS

Though totally different considering the nosological type of pathology, the groups of first episode psychosis (FEP) and anxiety disorders (AD) do not show important differences according to the studied purpose. Psychological well-being showed significant positive correlation with QOL and SS in both groups. Regarding symptomatology, significantly negative correlations were recorded for the above mentioned OOL measurements. scores were significantly negatively correlated with symptomatology. Fava G et al studied the construct of well-being in generalized anxiety disorder and showed the importance of therapy for the outcome [17].

Findings suggest that well-being and QOL are related but distinct constructs. These findings partially support previous research data, as they get important implications for further works in their area. For both groups social support has been associated with higher ratings of psychological well-being. The findings do not suggest that severity of the negative symptoms in FEP could be related to psychological well-being. This might reflect the distinction between objective and subjective measures of QOL. The significant correlation between QOL psychopathology score and are in concordance with other studies [18-19]. Malla A et al studied the link for FEP between psychopathology, quality of life and functional outcome. The more specific symptomatology is present, the more difficulties and deficits in quality of life and outcome [20].

Psychological well-being and ill-being are different constructs but with many links regarding biological correlates [21].

Quality of life for both psychotic and neurotic pathology is an important concept with impact on the disease but also on individual functioning and life. Beyond symptoms, it influences the person's life history and his/her position in the system [22,23].

Females reported a better QOL than males in both study groups. This is consistent with most of the studies [24,25]. There might be some cultural explanations such as women being less expected to find an outside job as they are more involved in household activities. Women also have a greater tendency towards affiliate behavior which reinforces a larger supportive network which can buffer stress. Also, the protective role of estrogen is to be taken into account. On the other hand there is a lack of gender differences in well-being, that highlights again the fact that well-being and QOL are

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distinct constructs. QOL and PWB are intrinsic features for recovery.

The study was conducted on a relatively small sample so results have to be replicated in studies on larger samples. Also other types of neurotic disorders have to be included as comparison groups for FEP. QOL and PWB are concepts which relate to symptomatology but are distinctly different having a deep influence on the general functioning. From this perspective, response, remission and recovery have different meanings.

CONCLUSIONS

The therapeutic management means pharmacological treatment but also the psychotherapeutic approach, attaining personal goals, building meaning in life. Development of a "well-being therapy" would largely benefit psychotic as well as neurotic patients with the purpose of experiencing a life well lived.

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ECTOPIC ERUPTION OF PREMOLARS

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REZUMAT

Ectopia dentară este anomalia ce se caracterizează prin modificarea traiectului de erup ie a unui dinte unui dinte, determinând tulburări ale func iilor aparatului dentomaxilar. Aceste articol are ca scop necesitatea furnizării câtorva informa ii privind frecven a, etiopatogenia, semnele clinice și metodele de tratament ale ectopiei de premolar, avănd în vedere că în literatura de specialitate sunt pu ine articole care abordează acest subiect.

Cuvinte cheie: anomalii dentare, ectopia, premolar

ABSTRACT

Dental ectopia is an anomaly represented by the change in the normal pathway of tooth eruption, causing functioning disorders of the dental- maxillary apparatus. This article has the purpose to supply information regarding the frequency, etiopathogeny, clinical signs and methods of treatment for premolar ectopia, considering that there are few literature articles discussing this subject.

Keywords: dental anomalies, ectopic eruption, premolar

INTRODUCTION

Some authors use the term ectopia in the case of vestibular tooth eruption, outside the arch line, and the term entopia when the tooth erupts inside the oral cavity. Also, literature cites the term distopia [1]. Dental ectopia is characterised by the change of the normal pathway of tooth eruption, which

may occur in any region of the alveolar and basal bone [2].

The anomaly may be a symptom of a syndrome (maxillary compression, primary dental-alveolar incongruence, maxillary retrognation) or can be a well defined entity produced by the position of the tooth germ following primary or local causes [3].



Figure 1. Ectopic lower second premolar (4.5)

EPIDEMIOLOGY

In our country, distopia is found with the following frequency: superior canine teeth, inferior 2nd premolars, inferior canines and superiror premolars.

The distopia can occur in the incisors or molars, but in a smaller percentage [1]. Many studies show that the maxillary first has an ectopic eruption with a molar of 1.8-6% in the general frequency population and 4 times higher than in the case of patients with cleft lip and palate [4]. Also, in the case of cleft lip and/or palate, the ectopia of the first maxillary molar represents 20.26% of all ectopic maxillary first molars [Carr and Mink, 1965; Ranalli et al., 1986; Bjerklin et al., 1993; Silva Filho et al., 1996] [5]. The prevalence of the ectopic canine is 2:100, in 85% of cases the canine has a palatal location and in 15% of cases a vestibular location[6]. In the general population the canine ectopia is found in 1.5%-2% cases [Thilander of and Jakobsson, 1968; Ericson and Kurol, 1986], women being the most affected, 2:1 [Power and Short, 1993][7]. Bjerklin et al., 1992,

show that the ectopia of the upper first molar is associated with the maxillary canine ectopia.

Regarding the premolar ectopia, literature offers few data on the frequency of this dental anomaly of eruption. In a study on a group of 410 patients in the Clinic of Orthodontics and Dento-Facial Orthopedics Bucharest of the Faculty of Dental Medicine, during the period 2004-2010, we found a number of 17 patients that presented at least one ectopic premolar, namely 4.14% of the total of patients that were included in the study. Regarding the location of Pm2 to the vestibular or palatal position, we noticed 9 Pm2 in oral location (palatinal, lingual), 2 second premolar in vestibular location. In the case of Pm1 distopia, we found 4 cases where the first premolar was located vestibularly and 2 cases with oral position. In all cases, the patients had occlusion disorders, more evident in the case of entopia, that generate different toothing and occlusal- articular stops. Regarding gender distribution, the premolar ectopia affects especially the females (10 cases vs 7 cases in male patients).



Figure 2. Frequency of ectopic premolars

ETIOPATHOGENY

Ectopia is a rare developmental anomaly with unknown and controversial etiology. It is supposed that an eruption process can be altered by genetic factors [8,9], physical obstacles [10], or multiple causes [11].

The primordial occurrence mechanism dental ectopia is related to objective causes, that prevent the tooth to erupt in its place within the dental arch, knowing the fact that the tooth normally erupts towards the lower resistance area. The labial or oral positions depend on the vestibular-oral level of the tooth in the moment the obstacle is met. The most frequent obstacles are the persistence of the temporary tooth without resorption; the presence of a dense bone or a hard fvber-mucous cover; the presence of supernumerary teeth; reduction or absence of eruption space, this being one of the most frequent causes of ectopia occurrence [1].

CLINICAL SIGNS

Regarding the clinical signs, ectopia becomes evident with the eruption of the tooth that has a position outside or inside the arch line, labially or orally. The ectopia causes disorders in the functions of the dental-maxillary apparatus [1], thus the first upper premolar ectopia can lead to physiognomical disorders, by the edentulous aspect, the first and second premolars can produce traumatic ulcerations of the vestibular mucous membrane [1]. In the case of entopia, occlusion disorders can occur and can generate cross-bite and occlusal-articular disorders. Another consequence of ectopia is the interruption of the dental arch continuity followed by an overloading of the ectopic tooth. Thus, periodontal modifications and atypical abrasion occur. Also, as a consequence of ectopia, disorders of the temporomandibular joint can occur in the long term.



Figure 3. Lower second premolar ectopia

The ectopia of the upper and lower second premolars is frequently oral, by minimizing the functional space of the tongue and limiting the articulation movements. In many cases the ectopia is accompanied by teeth crowding, so it increases the predisposition for decay [12].

The diagnosis is based on the clinical examination, and the radiological

examination (orthopantogram, retro-alveolar radiography) confirms the diagnosis. This can indicate the causes that determined the ectopia and help us manage the plan of treatment [1]. Also, the radiography offers data related to the degree of tooth development, the root position, the relation with the neighboring teeth, the odontal and periodontal health in that area [3].



Figure 4. Ortopantomogram - ectopic lower second premolar



Figure 5. Ectopic lower second bicuspid (3.5) – lack of space for the second bicuspid eruption



Figure 6. Ectopic upper second bicuspid- oclusal disorders



Figure 7. Radiological image- ectopic upper second bicuspid



Figure 8. Ectopic upper second premolar (2.5), oclusal disorders causes by the ectopic upper second premolar and the rotations of the upper first premolar (2.4) and first molar (2.6)



Figure 9. Radiological image- ectopic upper second premolar (2.5)



Figure 10. Bilateral ectopic upper second premolars



Figure 11. Ectopic upper second biscuspid- cleft palate

THE TREAMENT OF PREMOLAR ECTOPIA

The treatment can be preventive or curative, when the tooth has erupted .

The prevention treatment consists in:

- Serial extractions extraction of a temporary first molar at 9 years in order to accelerate the evolution of the first premolar;
- Appliance of space maintainers if the extraction of the temporary teeth is made before their physiological exfoliation;
- The treatment of the decay in order to avoid tooth extractions.

The curative treatment depends on the presence or absence of needed space to align

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the ectopic premolar. Thus, we can meet the following situations:

- In order to maintain the space, by persistence of the obstacle on the dental arch (temporary teeth, supernumerary tooth, bone cover), the alignment of the ectopic tooth on the dental arch should be made;
- If the space is reduced, this can lead to the distalization of the unilateral or bilateral first permanent molar, depending on the age and clinical situation of the patient;
- The extraction of the ectopic tooth should be made, if eruption space does not exist.

In most cases the premolar ectopia will be solved by extraction of the ectopic tooth [12].

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THE MAIN HUMAN BACTERIAL INFECTIONS DIAGNOSED IN CLINICAL LABORATORY PRACTICE – GENERAL CONSIDERATIONS

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REZUMAT

Procesul infectios poate fi înțeles ca o confruntare între două forțe ostile: pe de o parte există agentului infecțios, natural dotat cu un număr de caracteristici agresive, iar de cealaltă parte se află organismul gazdă, dobândind o serie de capacități de apărare antiinfecțioase. Interacțiunile dintre om și microorganisme sunt extrem de complexe și sunt departe de a fi pe deplin elucidate. Ceea ce se știe despre interacțiunile dintre aceste entități vii, două joacă un rol important în practica de diagnostic microbiologic și în managementul bolilor infecțioase

Cuvinte cheie: proces infecțios, infecție bacteriană, diagnostic microbiologic

ABSTRACT

The infectious process can be understood as a confrontation between two hostile forces: on one side there is the infectious agent, naturally endowed with a number of aggressive features, and on the other side stands the host organism, receiving a series of antiinfective defense capabilities. Interactions between humans and microorganisms are exceedingly complex and are far from being completely understood. What is known about the interactions between these two living entities plays an important role in the practice of diagnostic microbiology and in the management of infectious diseases

Keywords: infectious process, bacterial infection, microbiological diagnosis

INTRODUCTION

The end of the twentieth century and the beginning of the third millennium faces a paradoxical evolutionary trend of infections and infectious diseases. An obvious decrease is observed in the morbidity of "classical" diseases, widespread and causing plagues over centuries - cholera, plague, smallpox - and others as recent - diphtheria,

whooping cough, polio and others. The extinction trend of some diseases (tuberculosis, venereal diseases, diphtheria, polio, measles, etc.) is only seeming, as in fact they are strictly controlled by submitted efforts for their prevention, any diminution of preventive measures leading to increases in the number of cases [1].

There is also a significant decrease in the mortality of most diseases still in circulation, and in the number of disabilities in varying degrees, as a direct consequence of progress in the control of treatment. This fact has contributed significantly to improve the quality of life and life expectancy.

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In rich countries, infectious disease control costs are enormous and physicians are faced with infections and diseases caused by infections, from approx. 21% in the U.S. over 45% in France, according to various published statistics (J. Cfuff and all., J.Breton and Ch. Lafoix) [1].

Present situation. We stand, no doubt, in a happy moment of survey if we consider the greater capacity for treatment of infections, both etiological (with antibiotics, antivirals, etc.), but also by means of supporting the defense mechanisms of the host. Wellknown successes in the field of antibiotictherapy caught, unfortunately, new problems waiting to be solved. Misuse of antibiotics, often unjustified and incorrect, led to adaptation and resistance from some pathogens and non-pathogens, event which triggered a real "rush" after new antibiotics, active on these microorganisms. The selection of resistant strains - especially in hospital environment, in ICU, pediatrics, surgery, etc - was recorded in many cases, leading to real outbreaks of severe hospital aguired diseases with opportunistic pathogens, resistant to usual therapy [1].

What do we expect from the future? In terms of diagnosis, there is hope for a better control of subclinical infections, because they represent a huge reservoir of infection and a way to maintain the activity of the disease with the risk of reactivating the infection. There is also hope for a better control of hospital aquired infections, especially in the current context of "hospital" germs.

The goal is to achieve a broad consensus for a better control in using the existing antibiotics, to prevent infectious agents to develop adaptation and resistance mechanisms.

THE INFECTIOUS PROCESS

If in the current language, the concepts of infection and infectious disease largely overlap, in reality not every infection causes a disease and not every illness is due to a current infection [1]. The infectious process can be understood as a confrontation between two hostile forces: on one side there is the infectious agent, naturally endowed with a number of aggressive features, and the other side is represented by the host organism, receiving a series of antiinfective defense capabilities.

Interactions between humans and microorganisms are exceedingly complex and are far from being completely understood. What is known about the interactions between these two living entities plays an important role in the practice of diagnostic microbiology and in the management of infectious diseases [2].

The complex relationships between human hosts and medically relevant microorganisms are best understood by considering the sequential steps in the development of microbial-host associations and subsequent development of infection and disease.



Figure 1. General stages of microbial-host interaction

The stages of interaction are shown in figure 1 and include physical encounter between host and microorganism, colonization or survival of the microorganism on an internal (gastrointestinal, respiratory, or genitourinary tract) or external (skin) surface of the host, microbial entry, invasion and dissemination to deeper tissues and organs of the human body, and resolution or outcome.

INFECTIONS OF THE RESPIRATORY TRACT

Etiology of upper respiratory tract infections and related cavities

Upper respiratory tract infections cause diseases for which, most commonly, medical advice is required [3]. The upper respiratory tract includes the epiglottis and surrounding tissues, the larynx, the nasal cavity and the pharynx, divided into three segments: nasopharynx, oropharynx and laryngopharynx [2]. The lack of distinct anatomical barriers between upper respiratory tract segments allows the spread of infection by continuity, leading to the occurrence of combined clinical symptoms and frequent complications, by affecting the sinuses, middle ear, larynx and lower respiratory tract [3].

Upper respiratory tract infections are extremely common in infants and young school children, most of these infections having a viral etiology (Rhinoviruses, Respiratory Syncytial Virus, Para-influenza viruses, Adenoviruses, Echoviruses 11 and 20 types, etc) and occur in winter [2-4].

Although these viral infections do not benefit from antiviral treatment, they heal spontaneously but by damaging the respiratory epithelium and congestive obstruction of sinuses or Eustachio tube, favouring the over-infection with bacteria from the indigenous flora [3]. Only a few bacteria act as primary pathogens at these levels, sometimes causing serious diseases: Streptococcus pyogenes, *Mycoplasma* pneumoniae, Chlamydia pneumoniae, Corynebacterium diphteriae, Haemophilus *influenzae* b type.

Acute pharyngitis is the most common infection of the upper respiratory tract, by far the most important pathogen being *Streptococcus pyogenes* (group A β *hemolytic Streptococcus*) [5]. *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis* often colonize the nasopharynx in young children, and they are also the 3 most common otitis media pathogens [6]. Children are susceptible to bacterial infections during or soon after upper respiratory tract viral infection [7].

Acute otitis media is one of the most common pediatric infectious diseases. Although the disease is primarily considered a bacterial infection, it is well known that viral upper respiratory tract infections predispose children to otitis media, this often occuring as a complication [8,9]. *Mycoplasma pneumoniae* is a common cause of upper and lower respiratory tract infections in persons of all ages and may be responsible for up to 40% of community-acquired pneumonia [10].

Etiology of lower respiratory tract infections

Lower respiratory tract infections are caused by various microorganisms and by their severity. manv of which require antimicrobial treatment. Infections of the sub-glottis floor manifest as various clinical ethiopathogenical and entities tracheobronchitis, bronchiolitis, alveolitis, interstitial pneumonia - with acute or chronic evolution. Some infections are primary, others are secondary to local or general deficiencies of the anti-infective defense [3].

Respiratory Syncytial Virus (RSV), Parainfluenza and Influenza viruses, Rhinoviruses, Adenoviruses cause most acute infections of the trachea and bronchi [4]. Secondary bacterial infections with *Streptococcus pneumoniae* or *Haemophilus influenzae* may occasionally follow.

Chlamydia pneumoniae, a more recently recognized pathogen, can cause acute bronchitis as well pneumonia. as *Mycoplasma* pneumoniae and Chlamydophila pneumoniae cause over 22% of community-acquired pneumonias and 5 to 10% of cases of tracheobronchitis, pharyngitis, laryngitis and sinusitis [11, 12]. The infection of the smallest airways occurs before the air space (bronchioles) is dominated by viruses and Mycoplasma pneumoniae. Bronchiolitis affects primarily infants and young children and occurs most commonly during winter months [13].

The most serious infection of the respiratory tract is pneumonia, which is centered on the distal air spaces from the alveolar ducts to the alveolar sacs. The type of pneumonia produced is a combination of microbial factors and the status of host defense mechanisms. Most pneumonia cases result from inhalation of respiratory pathogens or aspiration of contents of the upper respiratory tract.

Acute pneumonia in the outpatient setting (community-acquired pneumonia) is caused commonly Streptococcus most by pneumoniae, Haemophilus influenzae and Moraxella catarrhalis. Acute pneumonia in the hospital (hospital-acquired pneumonia) commonly is caused most bv Enterobacteriaceae, Pseudomonas spp. and Staphylococcus aureus [13].

INFECTIONS OF THE GASTROINTESTINAL TRACT

Etiology of upper gastrointestinal tract infections

The upper gastrointestinal tract consists of the esophagus, stomach and proximal duodenum. Esophagitis is associated with swallowing difficulty and pain on swallowing (dysphagia), the gastroesophageal mucosa being at particular risk of ulceration. The most common infectious agents in this site are Candida albicans and Herpes Simplex virus, both of which produce erosive disease [13].

Gastric pH ranging between 1-4 due to the does secretion of HCl not allow multiplication of bacteria introduced with food or swallowed together with the oronaso-pharyngeal secretions. In people with hypo- or aclorhidria the number of bacteria in the stomach significantly increases (> 106/g) [3]. Helicobacter pylori is a Gramnegative bacterial species that selectively colonizes the gastric epithelium and is the most common bacterial infection worldwide [14].

Humans are the source of infection, transmission occurs via the fecal-oral and oral-oral routes, especially in families and in the community. Sustained interactions between *H. pylori* and humans significantly

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increase the risk for atrophic gastritis, intestinal metaplasia, and distal gastric adenocarcinoma, and colonization by *H. pylori* is the strongest identified risk factor for malignancies that arise within the stomach [15]. Sero-epidemiological studies have shown that those with gastritis with *H. pylori* have a six times greater risk of gastric cancer [3].

Etiology of lower digestive tract infections

"Gastroenteritis" is a term used to describe the several types of lower gastrointestinal infections, diarrhea being the most common symptom representative for these infections.

By definition, diarrhea is a clinical syndrome characterized by frequent stools (3-40/24 hours) with low consistency, sometimes watery, which may lead to electrolyte unbalances accompanied by

severe hemodynamic disorders causing death. The fever syndrome accompanies the infectious diarrheal syndrome and gastrointestinal events (loss of appetite, nausea, abdominal pain, bloating, flatulence) are present in varying degrees of intensity.

Diarrhea is, after cardiovascular disease, the second leading cause of death globally and remains the third most frequently encountered syndrome in medical practice [3]. The diarrheal syndrome is represented in the practice of infectious diseases by a wide range of clinical entities with symptomatic and developmental features determined primarily by the etiologic agent. The main currently known etiologies for various diarrheal syndromes are summarized in Table 1.

Syndrome	Bacteria	Other (parasites, viruses)	Comments
Inflammatory diarrhea, including dysentery	Enteroinvasive Shigella spp. Enterohemorrhagic E. coli Salmonella enteritidis Campylobacter jejuni Vibrio parahaemolyticus Clostridium difficile	Entamoeba histolytica	Involves colon; fecal leukocites often present
Non- inflammatory diarrhea	Enterotoxigenic E. coli Enteroaggregative E. coli Vibrio cholerae Clostridium perfringens Bacillus cereus Staphylococcus aureus	Giardia lamblia Cryptosporidium parvum Isospora belli Microsporidia Norwalk-like viruses Rotavirus; Astrovirus Enteric adenovirus	Involves proximal small bowel; fecal leukocites usually absent
Diarrhea with systemic disease, including enteric fever	Salmonella typhi other Salmonella spp. Yersinia enterocolitica Campilobacter spp.	none	Involves distal small bowel; fecal mononuclear leukocites may be present

Tabel 1. The major gastroenteritis syndromes and most common etiologic agents [13]

URINARY TRACT INFECTIONS

The urinary tract is divided into an upper portion, composed of the kidneys, renal pelves and ureters, and a lower portion, made up of the urinary bladder and the urethra. Upper urinary tract infections are most commonly ascending; that is, they originate in the urinary bladder and ascend through the ureters to the kidneys. Normally, the vesicourethral valve prevents reflux of urine from the urinary bladder into the ureters.

Individuals with urogenital anomalies or with overdistention of the urinary bladder from outflow obstruction, neurogenic malfunctions, or pressure from an enlarged uterus during pregnancy are particularly susceptible to ascending urinary tract infections. Infections of the renal pelvis (pyelitis) and kidney (pyelonephritis) are the most common complications [13].

Uncomplicated infection is acute cystitis or pyelonephritis in a young woman without underlying urinary tract or systemic disease. *Escherichia coli* is responsible for almost all of these infections. Cystitis or pyelonephritis in males, children, chronically catheterized patients and women with recurrent infection, urologic abnormalities is considered a complicated infection [13].

Microorganisms that are considered contaminants and potential pathogens in the urinary tract are selected in Table 2.

Tabel 2. Some commensal flora and	potential	pathogens in	the urinary	tract [[13]	l
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Commensal flora	Potential pathogens
α/β-hemolytic streptococci	Corynebacterium urealyticum
Bacillus spp	Enterococcus spp.
bucillus spp.	Enterobacteriaceae
Coagulase-negative staphylococci	Pseudomonas spp.
Diphthoroids	Staphylococcus aureus
Dipittieroids	Staphylococcus epidermidis
Lactobacillus spp.	(elderly men)
	Staphylococcus saprophyticus
	(young women)

Urinary tract infections are common in female patients in general practice and urine is the most frequently received specimen in microbiology laboratories. These common bacterial infections affect 20-50% of all women at least once in their lives [3,16]. Many practitioners, however, also use urinary dipstick results and request analysis of midstream urine samples. In over 62% of women presenting with suspected urinary tract infection, the diagnosis is laboratory confirmed [17].

Urinary tract infections (UTIs) caused by *E*. *coli* are one of the most common extraintestinal infections in women. Young,

otherwise healthy, sexually active women have the highest risk for communityacquired UTIs. The main risk factors for UTI are recent and frequent sexual intercourse, contraceptive use, and a history of UTIs [18].

Catheter-associated urinary tract infections represent the most common type of nosocomial infection and are a major health concern due to the complications and frequent recurrence. These infections are often caused by *Escherichia coli* and *Proteus mirabilis*. Due to the frequent and sometimes unnecessary use of indwelling catheters during hospitalization 21 to 50% of patients are placed at risk for complications associated with the use of these devices [19].

INFECTIONS OF THE GENITAL TRACT

The genital tract consists of external and internal genitalia in both sexes. In males, the internal genitalia include the testes. epididymus, seminal vesicles and urethra. In females, the internal genitalia are the ovaries. fallopian tubes. uterus (endometrium), uterine cervix and the vagina with its accessory glands. The external genitalia consist of the penis and labia.

Infections can be divided conceptually into sexually transmitted infections, peripartum infections and vaginitis.

Chlamydia trachomatis is the most common cause of bacterial sexually transmitted infection and is associated with increased risk of pelvic inflammatory disease, ectopic pregnancy, tubal infertility and increased susceptibility to human immunodeficiency virus infection [20]. Repeated chlamydial genital infections are common and result from failure of antibiotic therapy, or reinfection by unprotected sexual contact [21,22].

The sexually transmitted pathogens Chlamydia trachomatis and Neisseria *gonorrhoeae* cause 30%–50% of pelvic inflammatory disease cases [23]. Mycoplasma genitalium has been identified possible etiologic as а agent of nongonococcal, nonchlamydial asymptomatic pelvic inflammatory disease [24]. It has also been detected in cervical and salpingeal samples obtained from women with laparoscopically confirmed endometritis and salpingitis [25].

Several sexually transmitted infectious agents produce ulcerated lesions in the external and/or internal genitalia, by far the

most common being the Herpes Simplex virus. Other genital ulcer syndromes include syphilis, chancroid (caused by *Haemophilus ducrey*) and lymphogranuloma venerum (caused by L1, L2 and L3 serotypes of *Chlamydia trachomatis*) [13].

The most frequent manifestations of genitourinary candidiasis include vulvovaginal candidiasis in women. balanitis and balanoprosthitis in men, and candiduria in both sexes. Candida albicans genitourinary infections are remarkably common but occur in different populations, immunocompetent well as as immunocompromised [26].

SKIN AND WOUND INFECTIONS

The accumulation of pus, either within an abscess or exuding from a sinus tract or from a muco-cutaneous surface, is one of the cardinal indicators of local sepsis. Varying degrees of redness, pain and swelling may also be present.

Exogenous wound infections include those associated with traumatic injurv or decubitus pressure ulcers, bites, burns or foreign bodies in the skin or mucous membranes. Endogenous wounds and abscesses may be associated with appendicitis, cholecystitis, cellulitis, dental infections, osteomyelitis, septic arthritis, sinusitis or other internal infections. Many nosocomial, of these processes are contracted after invasive procedures, surgical manipulation or placement of prostheses [13].

Certain bacteria are associated with particular clinical situations. Pasteurella multocida is commonly found in wounds that result from animal bites. Pseudomonas aeruginosa, Candida spp. and a variety of filamentous fungi are particular problems in burn wounds. Aerobic gram-positive bacteria (including Staphylococcus aureus Streptococcus pyogenes), strictly and

anaerobic bacteria and aerobic gramnegative bacilli frequently cause infections in patients with diabetes.

Cellulitis is a soft tissue infection, most commonly caused by staphylococci and streptococci, but in certain situations, gramnegative bacilli and anaerobic bacteria are implicated.

THE ROLE OF THE MICROBIOLOGY LABORATORY IN THE DIAGNOSIS OF INFECTIOUS DISEASES

The clinical and laboratory diagnosis of infectious diseases can be schematically divided into three stages: the preanalytic phase, the analytic phase and the postanalytic phase.

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The preanalytic phase includes: specimen collection and transport, specimen receipt and preliminary observations.

The analytic phase contains: microscopic examination, processing of specimens, interpretation of cultures, preliminary identification of bacterial isolates and testing of susceptibility to antimicrobial agents.

The postanalytic phase consists of: reporting results, interactions with epidemiologists, analysis of results, maintenance of records [13].

Traditionally, microbiologists have concentrated, as have other laboratory workers, on the scientific measurement – the analytic phase. It is now very clear that what happens before the measurement (preanalytic phase) and after the scientific determination is complete (postanalytic phase) are just as important as the accuracy of the measurement.

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THE IMPACT OF PERINATAL HYPOXIC-ISCHEMIA ON THE CENTRAL NERVOUS SYSTEM

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REZUMAT

Encefalopatia hipoxico-ischemică perinatală este una dintre cele mai comune leziuni cerebrale din perioada neonatală. Aceasta, reprezintă un trigger al procesului care duce la injuria cerebrală și prezintă ca tulburări inițiale: hipoxemia și hipercapnia. Ischemia cerebrală este rezultatul direct al hipotensiunii și a deprimării circulației, iar edemul cerebral și/sau hemoragia intraventriculară pot crește presiunea intracraniană contribuind la menținerea și accentuarea injuriei cerebrale. Cu toate acestea, în timpul reperfuziei, hipoxia/ischemia declanșează o cascadă de reacții neurochimice care culminează cu moartea neuronală. În acest sens, tratamentul neuroprotector perinatal vizează asfixia neonatală severă. Astfel, s-a demonstrat că măsurile terapeutice sunt eficace, aplicate și post-injurie.

Cuvinte cheie: nou-născut, encefalopatie hipoxico-ischemică perinatală (EHIP), injurie cerebrală, asfixie, neuroprotecție

ABSTRACT

The perinatal hypoxic ischemic encephalopathy is one of the most common cerebral injuries of the neonatal period. It is considered to be the trigger in the process leading to cerebral injury, having as initial disorders: hypoxia and hypercapnia. The cerebral ischemia results from hypotension and circulatory depression; and the cerebral oedema with/without intra-ventricular haemorrhage may increase the intracranial pressure contributing to the maintenance and exacerbation of brain injury. However, during reperfusion, hypoxia/ischemia triggers a cascade of neurochemical reactions that culminate in neuronal death. In this respect, the perinatal neuroprotective treatment concerns the severe neonatal asphyxia. Thus, it was shown that therapeutic measures are effective if applied even after the injury was produced.

Keywords: newborn, perinatal hypoxic ischemic encephalopathy (HIE), cerebral injury, asphyxia, neuroprotection

INTRODUCTION

The perinatal cerebral impairment has been at the centre of the scientific attention during the last decade, along with the new neurochemical mechanisms involved in the formation of these injuries. The perinatal hypoxic-ischemic encephalopathy (HIE) and the meningocerebral bleeding (MCB) are situated among the most common cerebral injuries during the neonatal period. The hypoxic-ischemic encephalopathy occurs in full term newborns (NB) being caused by perinatal asphyxia, and in the premature ones caused by the postnatal hypoxicischemic insult. These injuries are the most important causes of ulterior neurologic and neuropsychiatric handicaps. The intraventricular bleeding of the germinal structure is characteristic to the small premature newborn.

Recent figures suggest that 2 to 4 of 1000 full term newborns suffer ante-partum or intra-partum hypoxic-ischemic insults. Still, are data suggesting that only there approximately 10-15% of all the causes of cerebral paralysis can be attributed to intrapartum hypoxic-ischemic cerebral injuries. In addition, in 1/3 of severe perinatal asphyxia cases, the newborn's impairment occurs due to a congenital anomaly. Even if only 10-15% of the cerebral paralysis cases are reported as being intra-partum insults, the absolute number of affected children is very high, which explains the large number of cerebral paralysis cases [1-4].

The development of the hypoxic-ischemic injury

Haldane stated that the hypoxia-ischemia not only stops the system, but it destroys it as well, a statement that is valid until the present day. Recent information suggest that the hypoxic-ischemic insult must not be considered a terminal event, but more likely a trigger of the process that leads to cerebral injury, a process that can be delayed for hours or days. Clinical studies made on significant numbers of newborns with acute intra-partum asphyxia, repeatedly investigated by MRI demonstrated that they show normal spectres of cerebral phosphate at only a few hours after CPR. This come-back phase is followed by the deterioration of the macroergic compounds at 12-18 hours after the injury, reflecting a phase of secondary cerebral injury-deterioration.

Moreover, the positron emission tomography revealed an intensification of glucose use in the phase of hypoxicischemic encephalopathy, after severe asphyxia in newborns. The regions with high use of glucose in the precocious phases corresponded to the regions with cerebral damage, suggesting that some brain areas that are metabolically viable in the days after the injury shall be irremediably destroyed during tardive phases. The concept of secondary cerebral injury is important because it involves the existence of a "therapeutic window" phase for the neuroprotective treatment after hypoxiaischemia [1,2,4,5].

PATHOGENESIS

The initial disorders in the perinatal asphyxia are the arterial hypoxia and hypercapnia induced by the insufficient gaseous exchange along the placenta or caused by the postnatal insult at alveolar level. The cerebral ischemia occurs as a direct consequence of hypotension and because of the bloodstream depression, partially induced by the depletion of myocardial glycogen. Cerebral oedema (caused by the accumulation of lactic acid, tissue injury and blood-brain barrier) and/or the intra-ventricular haemorrhage may rise the intracranial pressure and, afterwards, lower the perfusion pressure.

In the case of neonatal intensive care measures, the prolonged hypoxemia can be avoided by the use of modern ventilation methods that control blood oxygenation. There is evidence that the intraventricular bleeding at 12-72 hours of life mostly occurs after the hypotensive period and the decrease of cerebral perfusion [1].

Pathogenic factors

1. The general pathogenic factors include:

- a) *Ante-partum factors* represented by maternal and obstetrical affections
- b) *Intra-partum factors:* abnormal presentations, prolonged labour;
- c) *Neonatal factors:* prematurity, respiratory distress, cardio-vascular pathology, infectious diseases and convulsions.

2. The impairment of self-regulation cerebral circulation. In slight HTN with asphyxia, the cerebral blood flow is 5 times higher; in arterial hypotension induced by bleeding, the flow lowers proportionally. These observations indicate the fact that the cerebral stream in asphyxia becomes "pressure-passive". Recent studies demonstrate the pressure-flow connection. It was shown in newborns that the absence of reactivity to CO₂ in the first 48 hours is a sign of late severe intracranial bleeding (confirmed by ultrasound). Moreover, the cerebral blood flow was 20% lower in the case of severe bleeding with the inclusion of parenchymal bleeding in comparison with the cases without bleeding. A serious prognostic is showed in newborns with low vascular resistance and a cerebral blood that does not respond to the flow modifications of PaCO₂ or to those of the arterial pressure, associated with cerebral silentium on EEG as well as with the

absence of the evoked visual potentials [2,4].

cerebral-vascular self-regulation The ensures the cerebral blood flow and the energy that is necessary for a normal cerebral functionality, as well as the morphological integrity. Vice-versa, the rise of the blood pressure induces normally arterial constriction and this is why the cerebral blood flow and the transmural capillary pressure gradient remain constant. Because of this normal self-regulation, in the suffering newborn, even the moderate arterial hypotension produces the decrease of the cerebral blood flow and, as a consequence, results in cerebral ischemia that aggravates the hypoxemia [1,2,4].

3. Blood pressure changes. The blood pressure rises during birth because even the slight or moderate asphyxia leads initially to hypertension and the process of birth itself is an asphyxial insult (Figure 1) [4,6].



Figure 1. The response of the cardiac flow to asphyxia

4. Vein pressure. Due to the fact that the germinal structure bleeding has a capillary

origin, a possible role of vein pressure rising is being considered.

5. Arterial PaCO² under normal conditions is a regulator of the cerebral vascular resistance. In this way the risen PaCO² associates with the frequency of the germinal structure bleeding, probably due to the maximal vascular dilatation. This is why hyperventilation at birth seems to prevent the development of cerebral bleeding. On the other hand, a very low PaCO² lead to ischemic cerebral injury.

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6. The injury of blood-brain barrier. The compromising of the blood-brain barrier is probably caused by the mixed effect of vascular dilatation and hypertension in the initial stage of asphyxia, but the particular

necrosis is important especially in the severe asphyxia [1,2,4–6].

THE PERINATAL CEREBRAL INJURY MECHANISMS

During reperfusion, the hypoxic-ischemia triggers a cascade of neurochemical reactions that culminate with neuronal death. Among multiple factors that act in this sense the following are mentioned: oxygen free radicals (OFR); excitatory aminoacids (EAA); intracellular calcium regulation; adenosine; nitric oxide (NO); the of genes/apoptosis; activation trophic immuno-inflammatory factors: system (Figure 2).



Figure 2. Probable biochemical pathways that contribute to the injury by reperfusion

The vascular and immuno-inflammatory mechanisms

Through the interaction between the endothelium and the circulating blood elements pathological processes take place. Neutrophils, monocytes and thrombocytes are activated by the endothelium and viceversa, the immuno-inflammatory cells activate the endothelium in order to produce humoral as well as for expressing the adhesion molecules. The microglial cells are activated after several hours of hypoxiaischemia. The neutrophils accumulate in the capillaries and postcapillary venules after the hypoxia-ischemia through the interaction between the adhesion molecules from the

endothelium's surface (P-selectins and intracellular adhesion molecule-1, ICAM-1) and the neutrophils' surface (L-selectin and CD_{11}/CD_{12}). B₂-integrins, Multiple cytokines, especially α factor of tumor necrosis (α -TNF), IL-1 and RLO stimulate the endothelial cells to produce ICAM-1 and selectins and in this way promote the neutrophils-endothelium interaction. After adhesion, the neutrophils are activated by the influence of PAF (activation factor of thrombocytes) and IL-8. In the case of immature newborns hypoxia-ischemia, the extravasation of neutrophils is rare but might produce neurotoxic effects through the blood vessels. The neutrophils can interact with thrombocytes and may cause local aggregation and microthrombosis [7– 9].

The activation of cytokines

Cytokines represent a heterogeneous group with of proteins, different functions including trophic influences on the hematopoiesis and acting as transmitters within the immunity system and between the nervous system and the immune system. Some cytokines, such as IL-1 β and TNF- α activate the inflammatory cells, and TNF- α produces toxic effects on also the oligodendrocytes and axons in experimental allergic encephalomyelitis.

The immunity modulation and cerebral injury

The effect on the immuno-inflammatory modulation on cerebral injury after hypoxiaischemia was recently evaluated. The antiproliferative treatment proved to reduce the microglia after the ischemia of the spine and it is associated with a reduction of the injury's effects. The blockage of the interaction between neutrophils and endothelium by antibodies anti- CD_{11} /anti- CD_{12} and anti-ICAM1 reduces the stroke after the transitory focal ischemia [7,10].

IL-6 has anti-inflammatory effects, inhibits the demyelinatination, reduces the toxicity of the NMDA receptor and has neuroprotective effects in ischemia according to some preliminary reports, but its importance for the immature brain remains unknown.

The mechanisms of immunoinflammatory injury

The microglia and neutrophils produce RLO, AAE, cytokines and NO, all of them being able to have toxic effects. Microglia proved to produce glutamate and a peptide that acts on the NMDA receptor. The toxicity of TNF- α on primary neural cultures is blocked by the antagonists of receptors AAE and IL-1 γ a, reduces the injury induced by the glutamate antagonists proving that the AAE system and the cytokines are in mutual interrelationships.

Gene activation

The activation of genes and the synthesis of proteins are depressed after hypoxiaischemia. The immediate early genes (IEG) are the transcriptional early answer to a variety of stimuli. Their products are transcriptional factors, which will act as the 3rd nuclear messenger that serves for the connection of the extracellular stimulus in the regulation of the target genes. Many studies indicate the fact that IEG expression is triggered by the events associated with the cellular death in the newborn's brain. A large number of IEGs are activated as a response to neonatal hypoxia-ischemia. The induction of these genes seems to be an important adaptive modification after the ischemic injury and IEGs seem to trigger the production of neurotrophines and growth factors that might be a part of the endogenous neuroprotector response to injury [1,11].

Apoptosis

There are 2 distinct forms of cellular death known as apoptosis and necrosis, which can be differentiated on the grounds of some specific characteristics (Table 1).

In contrast with necrosis, the apoptosis is an active process that triggers a sequence of

events that lead to cellular death and to the removal of the cellular content.

Apoptosis can be activated by many physiological and pathological stimuli. The intracellular signal may involve the activation of some secondary messenger systems, for instance intracellular Ca^{2+} , AMPc or PKC. The final execution is generally associated with the activation of endonucleases and DNA degradation [1,2,4,12–14].

Table 1. The comparative morphological characteristics of apoptosis and necrosis

No.	NECROSIS	APOPTOSIS
1.	It is produced after the disorder of the interior environment (e.g.: hypoxia-ischemia)	It is produced as a programmed cellular death
2.	There are masses of cells involved	Frequently isolated cells involved
3.	The dissemination of the cellular content \rightarrow "trigger" that produces an inflammatory response	The dissemination of the cellular content does not take place and implicitly there isn't any inflammatory reaction or response
4.	The tumefaction of the cytoplasm, mitochondrion and nucleus takes place, with the consecutive lysis of cellular organites	The nuclear and cell condensation rises to Ca ²⁺ and leads to the activation of endonucleases and the presence of apoptotic corpuscles
5.	ELFO shows a typical distribution of the disintegrated DNA fragments	ELFO shows a scalariform fragmentation of the DNA in 200 bp units

The apoptosis is a natural factor in the brain's development, at the level of which 50% of the neuronal cells are removed in the complex process of selection, during the differentiation and fixation of CNS structures. The cellular death secondary to

hypoxia may be an apoptotic event (Figure 3). Evidences of apoptosis were obtained in the studies on adult animals, where the inhibition of protein synthesis and/or the inhibition of ribonucleases offer neuroprotection against neuronal death.



Figure 3. The scheme of apoptosis



Figure 4. The asphyxia

The scheme of the circuit between the basal nodes and the regions that are especially vulnerable to asphyxia, the arrows __________ indicate the excitatory synapses, which use the glutamate as neurotransmitter, and the arrows ________ indicate the inhibitory synapses that use the gamma-aminobutyric acid (GABA) as neurotransmitter (Figure 4). The

perirolandic cortex, the putamen and the thalamus are especially vulnerable to asphyxia. The GPI indicates the internal globus pallidus, the GPe indicates the external globus pallidus and the STN the sub-thalamic nucleus.

Trophic factors

The trophic/growth factors are frequently regulated during the perinatal period of the development, characterized by accelerated dendritic growth, the formation of synapses and the myelination of axons. This is why the answer to injury can be anticipated to be, in this critical period of growth, seriously affected by multiple trophic influences. The message or protein of transforming growth factor- β_1 (β_1 =TGF- β_1), the gene-dependent calcitonin peptide, the primary factor of fibroblast growth (bFGF), insulin-like growth factor (IGF-2) proved to be regulated shortly after hypoxia-ischemia, while the neurotrophines including the neurotrophic factor derived from the brain (BDNF) and the nervous growth **factor** β (NGIF β) are less affected. The IGF system includes two active proteins (IGF-1 and IGF-2), two receptors (type I and type II) and 6 connecting proteins (IGFBPI-6).

The treatment with IGF-1 (intra-cerebralvascular administering) started at 2 hours after hypoxia-ischemia proved to reduce the cerebral injury for the adult's ischemia and for small foetuses going through hypoxiaischemia. The fractioned form of IGF-1 is less efficient than IGF-1 itself, and IGF-2 proved to favour the injury's extension.

The neonatal cerebral injury is attenuated also by other trophic factors, such as: NGF, bFGF and the osteogenic protein-1. In addition, IGF-1 may prevent apoptosis and bFGF supra-regulates the connection proteins of calcium and, at the same time, potentiates the effects of IGF-1 [2,6,11].

Hypothermia

The cerebrorpotector effect of hypothermia for adults and newborns during hypoxiaischemia is known since the beginning of the century. Recently it was acknowledged that by producing post-injury hypothermia the ischemic aggression for the adultis reduced and this regime proved to be efficient also in the hypoxia of the newborn. Hypothermia reduces the glutamate extracellular flow, attenuates the production of RLO, keeps the integrity of the cytoskeleton, reduces the apoptosis and preserves the protein kinase II calcium calmodulin-dependent after ischemia, all of them being relevant for their benefic effect [2].

The implications of neuroprotection

The most obvious objective and purpose of the perinatal neuroprotector treatment is the severe asphyxia from birth. This is why, the therapies are efficient even when they are applied after injury. Unfortunately, the "therapeutic window" is limited. However, some therapeutic agents proved to be efficient even when administered after the injury.

The oxygenation with extracorporeal membrane and the hypothermic stream shock connected to cardiac surgery are associated with a considerable risk of bleeding and considerable aggression of the newborn's brain. As I suggested before, for these groups of children with high risk a would neuroprotective treatment be recommended, especially if the therapy can be administered before the injury. Until now, the best strategy for neuronal protection is not known. The multicentric randomized study of Mg⁺⁺ action on the asphyxia is one of the first made in this sense [1,2,4].

The majority of physicians that cure newborns agree that the absolute priority for the following years is the improvement of the neurological functions development in children that survive. It is difficult to evaluate the quantum of different factors contribute to cerebral damage, that especially for premature NB (trauma, hypoxia, metabolic disorders, nutritional deprivation, etc.). Another aspect is connected to the fact that an evaluation as complete as possible of the neurological functions is possible only after several years. Considering that approximately 50% of the NB with GA less than 32 weeks of gestation show a certain degree of cerebral impairment, the therapeutic attitude in front

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BREASTFEEDING OF NEWBORNS AND THE OBESITY RISK – CONNECTIONS ON A MURES COUNTY STUDY GROUP

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REZUMAT

Scopul studiului nostru a fost analiza corela iilor posibile dintre obiceiul de alăptare la sân și greutatea la naștere a nou-născutului, care ar putea fi folosiți în cadrul unui screening ca factori predictivi ai apariției obezității la copii. Metodologie. Au fost luate în studiu două loturi de copii, un lot de copii cu obezitate și un lot de normoponderali, aceste loturi având o structură asemănătoare pe vârstă și sex, în perioada 2009-2010 în Clinica de Pediatrie nr. II din Tg. Mureș. Rezultate. Datele din ultimii ani situează Mureșul în rândul zonelor cu frecvență moderată a obezității la copil. Legătura între greutatea mare la naștere și obezitatea dezvoltată ulterior este semnificativă la băieți, însă nu putem demonstra o corelație semnificativă între obezitate și greutatea la naștere, în cazul de față. În ambele loturi predomină copiii cu alimentație naturală: 72,58% din copii obezi, respectiv 41,66% la normoponderali. Obezitatea la copiii monitorizati se poate corela statistic pozitiv cu alimentația la sân. Concluzii. Subliniem importanța monitorizării mai atente a copiilor obezi sub 2 ani, care în general sunt omiși din evaluările clinice și din graficele de urmărire a greutății acestora, corelat cu sexul și vârsta, pentru prevenirea obezității.

Cuvinte cheie: alăptare la sân, obezitate, IMC, graviditate

ABSTRACT

The aim of our study was to analyze the possible correlation between breastfeeding and birth weight, which may be used in a screening as predictors of the occurrence of obesity in children. Methodology. During the period 2009-2010, two groups were included in the study, one group of children with obesity and the other with age and gender matching normal weight children, in the Clinic of Pediatrics no. II, Tg. Mures. **Results**. Data collected during recent years classify Mures County among the areas with moderate obesity frequency in children. The connection between high weight at birth and further development of obesity is significant in boys, but we cannot demonstrate a significant correlation between obesity and birth weight in the presemnt case. In both groups, children with natural feeding were predominant: 72.58% in obese and 41.66% in normal weight children,. Respectively. Obesity among monitored children may be positively correlated with bteastfeeding. Conclusions. We emphasize the importance of a more careful monitoring of obese children under the age of 2 years who are generally not included in clinical assessments and in follow up weight charts correlated to gender and age, for the prevention of obesity.
Keywords: breastfeeding, obesity, BMI, pregnancy

INTRODUCTION

Obesity is a disease caused by multiple factors, and its occurence is caused by multiple interactions between genetic, social, behavioral, methabolic, cellular and mollecular factors triggering changes of the energetic balance.

Early obesity occuring as early as the age of 5, a more severe disease, is commonly associated with an excessive birth weight. It is also caused by some bad feeding habits of the nursing child and by a wrong behavior of the mother.

The second type of obesity, the late one, is less severe, and generally occurs after the age of 5. In such cases, the child eats more in order to protect himself from conflictual situations: such a child will often encounter difficulties in his family or at school (such as the parents' splitting up or a new sibling being born in the family).

Early cases of obesity are much harder to treat than late ones. The natural history of obesity reveals the fact that one in three overweight children will become an overweight adult. The occurrence of the disease seems to be influenced by a series of favorable factors acting in the uterus, in the perineum, or during childhood [1,2].

National and international studies place formula feeding improved with proteins and vitamins as a risk factor [3-5], but there are also studies supporting the opposite [6,7].

Based upon these data, we shall attempt to evaluate the importance of predictive risk factors, starting off with the connections between the nursing period, the birth weight and the developed obesity risk.

The objective of our study was to analyze the possible connections between breastfeeding and birth weight, which could be used as screening predictive factors for the occurence of child obesity.

METHODOLOGY

Two groups of children were included into the study – one group of obese or overweight children, and the other one, consisting of age- and gender-mathcing normal weight children. The study group included children with obesity as a main or secondary diagnosis and the reference group was composed of children hospitalised for other diseases. Our assessment was performed between 2009-2010 at the Childrens' Hospital no. 2 in Targu-Mures.

A useful antropometrical parameter is the weight index (WI) which is calculated for the nursing child by dividing the actual weight (AW) by the ideal weight (IW), and for the child who is older by dividing the weight to the waist (W) raised at the third power [1,8].

0-1 year old: WI = AW (kg)/IW (kg); over 1 year: WI = AW (kg)/ t^3 (cm)

There are nomograms that allow the classification of the child in a certain category also based on this parameter, but these are less available in current practice. The child's assessment based on this index is not fully satisfactory because it does not reflect the report between the total body fat and the lean body mass.

The best parameter for assessing child obesity over the age of 5 as well as for teenagers is the body mass index (BMI) which is defined by dividing the weight to the waist (kg/m2), this being significantly correlated to the total body fat [1,2].

We monitored nursing children as well as older children in order to be able to see the evolution of the obesity risk in time, as related to all the risk factors taken into account.

The two monitored groups are structurally the following:

- The first group = 62 children, presenting obesity with different ethyologies, having the average age of 9.7 years, out of which 58.06% were girls, and 63.3% came from an urban area;
- The second group = 72 children with normal weight, having the similar average age of 9.5 years, out of which 58.33% were girls, and half of them came from an urban area.

We used the GraphPad Instat assessment programme for statistical purposes.

RESULTS

The body mass index for all the children reveals the following:

- Normal, regular values for the reference group;
- Raised values, exceeding the accepted limits, for the children in

the study group. We defined obesity based upon the calculated index and the age of the subjects and came up with the following data:

- 25 children (17 girls and 8 boys) are considered to be overweight, being on the margin of first grade obesity (40.32%)
- 15 children (7 girls and 8 boys) were included in the first grade obesity category (24.19%)
- 12 children (6 girls and 6 boys) were included in the second grade obesity category (19.35%)
- 10 children (6 girls and 4 boys) present third grade obesity (16.12%) (Figure 1)



Figure 1. The obesity grade distribution of overweight children according to the PI/BMI indexes

This study includes two individual parameters: the birth weight and feeding type, and we compared the overweight children to those with normal weight, in order to establish high risk identification criteria. Regarding birth weight, we obtained the following data (Figure 2):

• Out of the 62 overweight children, 11.29% were born with a weight less

than 3000 g, and 17.74% with a weight over 4 kg

- O Out of the 40 children with normal weight, 29.16% were born with a weight under 3000 g, and 10.41% with a weight over 4 kg
- Regarding gender distribution, boys, though fewer than girls, were born with a higher weight (30.76% of them) but this is statistically almost

insignifiant due to the low number of children (p=0.16) and those who were born with less than 3000 g were only a few, as compared to the reference group where the repartition is the other way around (5.55% boys born with a weight of over 4 kg and 33.33% with a birth weight below 3 kg)

- O In the case of overweight girls, those who were born with low weight (13.88%) are significantly more than those with a higher birth weight (8.33%), and as compared to the reference group of normal weight children, where those with low birth weight (26.66%) also predominate as compared to those with a birth weight over 4 kg (13.33%)
- We can observe therefore that the connection between a high birth weight and a subsequent obesity is only significant for boys.
- 0 When comparing the two groups, we statisticallv found а irrelevant difference (p=0.191) between overweight children who were born with a weight of over 4000 g (17.74%) and those who were born with a normal weight (10.41%), although the percent of overweights is higher. Likewise, there is a statistically irrelevant difference (p=0.0339) between overweight children born with less than 3000 g (11.29%) as compared to those with a normal birth weight (29.16%), although the percent of overweights is lower.





As for the feeding habits, we assessed this parameter based on three categories: breastfeeding, formula feeding and mixed feeding. Therefore:

 Breastfeeding prevails in both groups: 72.58% of the overweight children and 41.66% of the children born with normal weights; - The overweight children fed on formula in the study group (12.9%) are less than those fed on formula in the reference group (18.75%)

The overweight children who received mixed feeding in the study group are also less (14.51%) than the normal weight children (39.58%)

 With regards to this study, obesity in children can be positively correlated to breastfeeding but not with formula feeding (p<0.0016, RR=1.742 95% IC: 1.205-2.517), findings which contradict national and international studies on the subject (Figure 3).



Figure 3. Comparison between the two groups based upon the three feeding types

We found the same structure when examining the two genders:

- Overweight boys were breastfed -73.07% as compared to 44.44% children with normal weights, respectively 15.38% of overweight boys received formula feeding as compared to 16.66% of normalweight children
- Overweight girls were breastfed 72.22% and only 11.11% received formula feeding, as compared to normal-weight girls who were breastfed (40%) and who received formula feeding - 20%
- With both genders, we observed that for the overweight children breastfeeding predominates, followed in the distance by formula feeding and mixed feeding, while in the case of the normal-weight children, the percent of the breastfed is close to that of the mixed-fed.

As an additional information, there are significant negative differences (p=0.0213,

RR=0.351 95% IC: 0.1442-0.857) with children in the third, the fourth or the fifth grade from the two groups, which leads to the conclusion that the first grade can be a risk factor for the occurence of obesity.

DISCUSSIONS

Our data confirm the fact that slight obesity predominates in the group of children with a body mass index higher than the average (64.52%), in consistence with other studies in this field [5,9].

As compared to a research done in the Western part of our country [5] by comparing a number of 5250 children with ages between 3 months and 16 years, the percent of obese inhabitants in Mures county is by far lower (1.06%). Nevertheless we believe that many children are not timelv examined properly and and diagnosed and thus, the actual numbers are much higher. We have also seen higher overweight numbers of students (a frequency of 88.70%), of older ages, as well as girls (with 58.06%). These data place our county among the areas with a moderate obesity frequency in children.

In his monography on obesity in the Banat area, Popa [5] studied the average age when 310 overweight children came to the hospital, and discovered that with boys the frequency of the first examination is higher in the first two years of life, and also between the ages of 10-14, meaning 105 cases of overweight boys out of 151 (which represents approximately 2/3 of the total number of boys). With girls, the first examination for such a diagnosis occured more frequently during the first two years of life, and between the ages of 8-15 years meaning 97 of the 159 diagnosed cases (almost 2/3).

We encountered similar data in our research i.e. most girls were diagnosed with obesity during puberty, between 9 and 17 years of age (75% of the girls in our study group), while boys were diagnosed earlier in their life, between the ages of 7 and 14 years (73%). There was a difference as compared to these new data for we noticed a low frenquency of overweight nursing children (1 case out of 62) and a higher frequency of

obesity in small children and teenagers of both sexes (88.70%). There were more overweight girls than boys, however, boys seeming to be more sensitive to risk factors for adult obesity.

The connection between birth weight and obesity has been a widely discussed aspect. Several studies on overweight children have shown that birth weight does not significantly differ with the overweight as compared to the children with normal weights.

However, some authors [10-13] have reported that 21% of the overweights were born with a weight outside of the 95th percentile. Out of these children, those born with a weight higher than 4000 g appear to present the greatest risk of becoming overweight after the age of 40, as compared to those born with normal weights.

A series of researchers underline the highly important effect that an exagerated motherly care or of over-feeding during the nursing period can have for the establishment of subsequent obesity cases; this can happen not only as a result of neuro-physical mechanisms, but also because of the development of an immature nerve system that presents abnormal, late satiety reflexes.

Other authors have stated that a reference point for assessing risk factors for obesity should be the weight reached by the child at the age of 5 [14,15]. The children whose weights exceed the 85 percentile present a higher risk of obesity. Specialists currently consider that the birth weight, the weight of the nursing child and the weight reached at some point during childhood – especially during the critical periods of fat tissue growth – are not variables that evolve independently, but aspects connected to one another, and such a connection shall be adressed in future researches [1].

During our research we found a worrying growing frequency of overweight children

in the Mures county throughout the years, and whose risk factors increase by 4 times as the children get older. Children living in urban areas present a greater tendency towards weight issues (whether that means their being overweight or underweight) than those living in villages. The somathometrical features of children with weight unbalances in our study group show that 15% of children are either overweight or underweight. The frequency of children with unbalanced weights in Mures County is lower than in children of the same age groups who live in the Banat area (20.4%) or in Moldova region (34.72%). Overweight boys outnumber the girls by 5.1% [16-18].

Whereas for the overweight and obese children, unfortunately we can observe a constant and significant annual frequency growth (p<0.0001, RR=2.618), the figures almost doubling during the period between the years 2000 and 2004 [17,19].

Within our study group, 16.7% were underweight at birth, 9.91% were over 4000 g at birth, and we can notice that in the group of children group who were born underweight there is a difference of frequency between girls (19.7%) and boys (13.6%), and therefore there are more girls who were born underweight than boys, who present a tendency to be born overweight in the Mures county. We calculated a statistically significant difference between the frequency of girls born underweight in the urban areas which was lower than that of

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girls born underweight in rural areas, and a non-significant difference between girls who were born overweight from both areas; the difference is the same with boys.

We cannot therefore establish a significant correlation between obesity and birth weight in these cases.

CONCLUSIONS

- ✓ The data we gathered during the past few years place the Mures area as a county with moderate obesity levels in children.
- ✓ The connection between being born overweight and subsequent obesity is significant in boys, but we cannot demonstrate such a connection in our cases.
- ✓ In both groups, most of the children were breastfed: 72.58% of the overweight, and 41.66% of the normal weight children. Obesity within the study group can be positively correlated with breastfeeding.
- ✓ We underline the importance of a greater supervision of toddlers under the age of 2, who are usualy omitted from hospital records and from weight charts as related to their sex and age. The weight management establishes intervention objectives according to the risk class and is based on the therapy itself, on specific education, on supervision and on a periodical weight review.

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EDIFIED OR CONFUSED? HOW COMPLETE AND ACCURATE IS THE INFORMATION ABOUT VITAMIN B12 ON ROMANIAN WEBSITES?

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REZUMAT

Deși studiile despre calitatea surselor de documentare medicală online în limba engleză au arătat că slaba calitate a informațiilor medicale poate să expunsă utilizatorii la riscuri semnificative privind sănătatea, nu există date cu privire la calitatea informațiilor de sănătate pe website-urile medicale românești. Studiul nostru a urmărit evaluarea calității informațiilor despre vitamina B12 adresate populației generale prin Internetul românesc. Am evaluat un eșantion de 10 site-uri selectate de pe primele două pagini de rezultate Google. Media scorului relativ de exhaustivitate a fost 4,80 (dintr-un maxim de 10), media scorului relativ de acuratețe a fost 6,85 (de asemenea din 10) iar media scorului de risc potențial a fost 8,70 (cu variații de la 0 la 17). Pentru a evita efectele adverse asupra statusului vitaminei B12, utilizatorii ar trebui să intre pe un număr mare de site-uri și să ceară sfaturi dintr-o sursă cu autoritate.

Cuvinte cheie: vitamina B12, informații, Internet, calitate

ABSTRACT

Although studies assessing the quality of English medical online sources of information have shown that the poor quality of medical information on the Internet exposes users to significant health risks, there are no data about the quality of health related Romanian medical websites. The goal of our study was to assess the quality of online information about vitamin B12 provided to the general population on the Romanian websites. We evaluated a sample of 10 sites selected from the Google's first two search results pages. The average relative completeness score was 4.80 (of a maximum of 10), the average relative accuracy score was 6.85 (also of a maximum of 10) and the average potential risk score was 8.70 (ranging from 0 to 17). To avoid adverse effects on their status of vitamin B12, users must search more then a few websites, and they should request advise from reliable sources.

Keywords: vitamin B12, information, Internet, quality

INTRODUCTION

The use of Internet as a source of health related information has grown continually

during the last decade [1]. In 2010, 34% of the Europeans 16 to 74 years of age, and 19% of the Romanians, respectively, have searched the Internet to find information about health and diseases [2]. Although several studies assessing the quality of English medical websites have shown that a considerable proportion of them are of poor quality and users are exposed to significant risks by taking wrong decisions about their treatment procedures [3], the Romanian medical cyberspace has not yet been systematically investigated, except for a preliminary study published by the authors [4].

The purpose of the present research was to make an assessment of the quality of information about vitamin B12 on the Romanian Internet by answering the following questions:

1. What are the general characteristics of the Romanian websites that present information about vitamin B12?

2. Is the topic of vitamin B12 completely and accurately covered online for the Romanian users?

3. Is there any information about vitamin B12 presented on the Romanian websites that could put unaware users at greater risk for vitamin B12 deficiency?

MATERIAL AND METHOD

We chose vitamin B12 as topic of our assessment because cobalamin deficiency has become a real concern through its frequency and severe consequences if left untreated, especially in high risk groups such as elderly people, pregnant women, children, patients with digestive and renal disorders [5], and also because of the interest that a certain part of the Romanian population has shown toward the vegetarian diet [6].

Our study sample included 10 websites listed by Google on the first and second results pages after searching the topic using the most plausible keywords "vitamin B12" at the URL: <u>www.google.ro</u> [7-9]. The search was done during June-August 2011. We included only those sites that covered the topic in at least 250 words in Romanian language and which targeted the general population. We excluded all sponsored links, discussion forums, infected and unavailable sites and also sites that required registration. If several pages or subdomains belonging to the same top level domain (TLD) were listed as separate links on the search engine's results page, we counted them as one webpage.

The content of the sites was assessed against a list of expected items that we developed by researching evidence based food guides and published literature. The list was included in an assessment form along with detailed instructions for the evaluators. (Available upon request from the corresponding author). The level of coverage was assessed by identifying the number of items on the standard list that were addressed on the site, regardless of their accuracy. The total number of items addressed resulted in what we called the absolute completeness score (aCS) of the site. Each item addressed on the site was then rated for accuracy, on a three level scale: totally correct (2 points), mostly correct (1 point), mostly incorrect (0 points). The sum of all points awarded to a site resulted in the absolute accuracy score (aAS) [10-14].

In addition to the rating methodology developed by the referenced authors we calculated the relative completeness score (rCS) and the relative accuracy score (rAs), respectively, as shown below:

rCS = 10 aCs / mCS

where, mCS represents the maximum completeness score (identical to the total

number of items on the standard list) Likewise:

rAS = 10 aAS/mAS

where, mAS represents the maximum number of points that a specific site could be awarded supposing all the items addressed were totally accurate (site specific maximum accuracy score). Thus, the relative score value of a site may vary between a minimum of 0 and a maximum of

50

10. Such a scale is not only easier to judge but also enables comparison of the results with those of other studies on health topics having a different number of items on content items list.

The risk score (RS) was measured by the total number of information pieces that could pose a health risk for the users, either by omission or by commission [15,16].

All websites were rated by two independent evaluators who followed the common set of instructions provided in the assessment form. The data were centralized, compared for discrepancies and all disagreements were settled by consensus.

The quality scores of sites in the categories defined by general characteristics were checked for statistical differences with the nonparametric Mann-Whitney U test (at 0.05 as level of significance) [17]. Correlations between the content quality scores as such, were checked with Spearman rank correlation test [18]. All statistical

analyses were carried out using Graphpad InStat Demo 3.06.

RESULTS

The majority of websites in our study sample (eight out of ten) were multi specialty sites posting information about many other health topics besides the one we investigated. The other two sites presented information exclusively about vitamin B12. A little more than half of the sites (six out of ten) were owned by commercial companies and two more by private citizens. The two ownership of sites remained unidentifiable. As far as the main purpose of the sites, most of them (eight out of ten) and the other were educational two commercial. Finally, taking into consideration the medical paradigm of the site, we identified seven complementary and alternative medicine sites and three conventional medicine sites.

The distribution of the rCS among the 10 sites evaluated for information on vitamin B12 is represented in Figure 1.



Figure 1. Distribution of relative completeness scores



The distribution of rAS among the websites is represented in Figure 2.

Figure 2. Distribution of relative accuracy scores.

The distribution of the risk scores among the evaluated sites is represented in Figure 3.



Figure 3. Distribution of the risk scores.

The U, U' and corresponding two-tailed P values found after checking the statistical

differences between the quality scores of the sites, classified according to their general

characteristics, using the Mann-Whitney test is showed in Table 1.

Varia	bles	U value	U' value	P value (two-tailed)	Interpretation
Specialization	rCS	~	~	~	Not aplicable *
	rAS	~	~	~	Not aplicable *
	RS	6.0	10.0	0.6941	Not significant
Ownership**	rCS	8.0	16.0	0.4528	Not significant
	rAS	9.0	15.0	0.5918	Not significant
	RS	10.5	13.5	0.8304	Not significant
Purpose	rCS	3.5	12.5	0.2936	Not significant
	rAS	7.5	8.5	0.9999	Not significant
	RS	7.0	9.0	0.8957	Not significant
Paradigm	rCS	1.0	20.0	0.0395	Significant
	rAS	0.0	21.0	0.0167	Significant
	RS	3.5	17.5	0.1379	Not significant

Table 1. Mann-Whitney statistics for differences between the quality scoresof sites, classified according to their general characteristics

* The test could not be applied because the SD of values in one group was null.

** The original categories for ownership were merged fit in a 2x2 contingency table.

Spearman "r" and corresponding two-tailed P values found after checking correlation between all three quality scores using

Spearman rank correlation test are presented in Table 2.

Table 2. Spearman statistics for correlations between quality scores.

Variables		r*	P value (two-tailed)	Interpretation
rCS	rAS	0.8161	<0.0058	Positive correlation; P value considered very significant.
rCS	RS	-0.7817	0.0075	Negative correlation; P value considered statistically significant.
rAS	RS	-0.6116	0.0667	Negative correlation; P value considered not significant.

* r values were corrected for ties

DISCUSSIONS

To the best of our knowledge this is the first study assessing the quality of information about vitamin B12 on the Romanian websites targeted to the general population.

The average relative completeness score (4.8), as well as the high number of websites with scores between 3-6 show that the Romanian websites coverage of the investigated topic is poor. It is important to note that, as the completeness score was developed to measure only the coverage of the topic on certain sites regardless of the correctness of information, this score must not be interpreted independently of the accuracy score unless one can overestimate the quality of the site.

Although rigorous comparison of results would be difficult because of some methodological reasons, many of the published papers on the quality of medical information on the English websites about a wide range of health topics such as scoliosis [10], cervical disc herniation [11], breast cancer. childhood asthma, depression, obesity [12], cocaine addiction [19], diabetes [20], nutrition [21], similarly conclude that the online information about health related problems is partial.

The accuracy of information about vitamin B12 on the Romanian web is also unsatisfactory as it is shown by an average relative accuracy score of 6.85. Most of the published literature about the quality of information on various health or disease related topics in English language similarly shows a low level of accuracy [10-11,14, 19-21].

We have to emphasize that using the relative accuracy score in isolation to judge the quality of information can be definitely misleading because it measures the correctness of information without any reference to completeness. As such, sites with extremely low coverage of the topic, can get high or very high accuracy scores if the little information they present is correct. To avoid such an unwarranted interpretation, the accuracy score must be estimated keeping in mind the completeness score.

Sites with both high completeness and accuracy scores are very rare (only one in our sample of ten), therefore the chance for users to get exhaustive and correct information about vitamin B12 is low unless they are routinely looking for the topic on more than one site.

As far as potential risk is concerned, many sites have omitted to warn users about essential facts. For example, only one site clearly explains that foods of plant origin are not a reliable source of vitamin B12, two other sites make only indirect reference to the fact, one site wrongly but strongly claims that vitamin B12 is found abundantly in certain foods of plant origin and six sites fail to mention anything about this crucial piece of information. Even more disturbing, some of the sites positively recommend certain nutritional supplements whith no proven bioavailability as valuable sources of vitamin B12. On one of the sites, we found an express recommendation directed to patients suffering from mental disorders to raise vitamin B12 levels by eating 0.250 kg of raw liver daily, for a whole week. Following this recommandation could cause an accumulation of retinol to toxic levels in the body. or. in case of microbial contamination, serious infectious complications. It is worth mentioning that the sites with the highest risk scores (17,15 and 10) were found among those embracing the complementary and alternative medical paradigm.

The statistical analysis of the scores revealed two notable statistically significant differences. Our data suggest that the Romanian complementary and alternative websites have significantly lower completeness and accuracy scores than conventional medicine websites.

As we expected, we found a positive correlation between rCS and rAS (statistically significant), and a negative correlation between both rCS and rAS on one hand and RS on the other. While the rCS-RS correlation is statistically significant, the last one is not.

The main limitations of the study are those inherent to Internet research. The repeatability of the results could be greatly influenced by the extreme dynamics of the cyberspace with websites continually appearing and disappearing or changing their ranking up and down on the search engines results pages. Substituting the search terms could also significantly change the components and structure of the sample and thus the quality scores as well.

The small number of sites included in our study should not be necessarily regarded as a limitation, because more than one study has revealed that most typical Internet users don't look beyond the links on the first results page of the search engine anyway [8].

Our results possibly suffer in a certain degree because of the subjectivity of the evaluators. The score most likely to be dependent on the evaluators' subjectivity is the risk score and it has to do with those items that cannot be *a priori* included in the assessment form and are to be identified and

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judged by the evaluator based on their own medical knowledge. However, we tried to minimize this factor by providing to the evaluators all the elements that could possibly be anticipated, and also by carrying out the assessment procedures by two independent evaluators.

Besides the results presented in this paper, the authors investigated the degree of compliance of the sites to the credibility criteria. This aspect of our research will be the topic of another paper.

CONCLUSIONS

1. Most of the sites in our sample were educational, owned by commercial companies and approached the topic of vitamin B12 from the complementary and alternative medicine point of view.

2. Overall, the coverage of the topic was lacking and exhaustive presentations were rare.

3. The accuracy of information about vitamin B12 on the evaluated Romanian websites was not satisfactory.

4. The assessment identified frequent omissions of essential information about vitamin B12 and an alarming number of erroneous facts that could expose the unaware users to serious health risks.

5. In order to be edified, avoid confusion and poor decisions related to the prevention and treatment of vitamin B12 deficiency, users must enter more then a few websites, and, even more importantly, they should request advise from a reliable source.

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THE USE OF CONTRACEPTIVE METHODS IN A ROMANIAN FEMALE POPULATION

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REZUMAT

Introducere. Acest studiu a avut ca obiectiv analiza modului de utilizare și a nivelului de cunoaștere a metodelor contraceptive (MC) într-o populație de sex feminin din România. Material și metodă Am aplicat un chestionar cu 111 itemi pe un lot de 661 de femei (424 fiind la vârsta fertilă de 18-49 de ani), distribuite în subloturi egale în funcție de mediul de rezidență, grupa de vârstă și nivelul de educație. Rezultate. Cea mai utilizată MC folosită de femeile fertile a fost prezervativul pentru zonele urbane, respectiv retragerea pentru cele rurale. Prezervativul a fost cea mai cunoscută MC în ambele medii rezidențiale. Femeile din grupa de vârstă 50 + au utilizat predominant MC tradiționale. Mai mult de jumătate dintre subiecți (60,4%) utilizau o MC la momentul interviului. Motivele neutilizării contracepției au fost: infertilitatea (4,7%), teama de efecte secundare sau neglijența (4,0%), lipsa de informații (1,9%). Concluzii. Rezultatele obținute evidențiază diferențe în utilizarea contracepției în funcție de vârstă și zona de rezidență; acestea ar trebui să constituie punctul de plecare pentru noi strategii de sănătate publică.

Cuvinte cheie: contracepție, metode contraceptive moderne, metode contraceptive tradiționale

ABSTRACT

Aim. This study aimed at investigating the pattern of usage and knowledge of contraceptive methods in a Romanian female population. Methods. We applied a questionnaire with 111 items to 661 women (424 at reproductive age 18-49 years), equally distributed by residence, age groups and instruction level. Results. The most used method amongst fertile women was the condom for urban areas, and withdrawal for rural ones, respectively. The condom was the best known method in both urban and rural areas. Women in the age group 50+ predominantly used traditional methods of contraception. More than half of the subjects (60.4%) were using contraception at the moment of the interview. Reasons for not using it were infertility (4.7%), fear of side effects or negligence (4.0%) and lack of information (1.9%). Conclusions. Results highlight differences in contraception use by age and residence; they should be the starting point for new public health strategies.

Keywords: contraception, modern contraceptive methods, traditional contraceptive methods

Access to quality reproductive health services, as a part of preventive health care, contributes to decrease the number of unplanned and unwanted pregnancies, the number of abandoned children, the number of abortions and abortion-related pathology, as well as to reduce the incidence of genital and breast cancer and of sexually transmitted infections [1,2].

Over the past years, several programmes have been successfully implemented, aiming at increasing the contraceptive use and, by that, at reducing the high number of abortions and abortion-related pathology, and decreasing maternal death rates and morbidity [3].

Contraception has undergone significant advances with the introduction of many different methods: oral contraceptive (OC), reversible long-term contraceptive methods involving intrauterine devices (IUD), surgical and essentially irreversible methods of both male and female sterilization, contraceptive patch, vaginal ring and more. Thus, there is an increasing array of contraceptive methods which offers choice and diversity to women of reproductive age and allows them to exercise greater control over the reproductive phase of their life, and to postpone having a family [4,5].

Despite the wide choice and diversity of contraceptive methods available, there are many women even in developed countries who do not use them. In particular, women in rural areas, teenagers and women over 40 years have been found to be more at risk [6,7].

Several studies and surveys have been conducted to assess the usage and the

behavior pattern of the different methods of contraception in Europe. The results of these studies concluded that there was a considerable variation in the overall contraceptive use, and in the use of the different methods, across different countries and regions [8-15].

An overview of reproductive health in Romania [16] reveals that in the 1960s, the communist government tried to reverse the country's fertility decline by outlawing abortion, restricting all means of contraception, launching a propaganda campaign against hormonal contraception, and introducing incentives to encourage women to have more births. To avoid unplanned births, many women resorted to illegal abortions (most of them self-induced or performed by an untrained individual under unsafe conditions), which contributed to Romania having the highest maternal death rate in Europe. Because a significant number of births were unplanned, state institutions had to house many children from families who could not afford to raise them.

Therefore in the 1990s, Romania was faced with the consequences of this rigorously enforced pro-natality policy for more than two decades, which restricted women's access to contraception and abortion.

After the fall of the communist government in 1989, health policymakers responded quickly by canceling the restrictions on contraception and abortion and by developing the first national family planning program. They also introduced new technologies in newborn and maternal health services, as infant mortality rates were still among the highest in Europe. Throughout the next decade, the government also took measures to prevent the spread of sexually transmitted infections, including

HIV/AIDS, and to reduce violence against women.

To address such a broad range of issues, in 1993, 1999 and 2004 with assistance from the Division of Reproductive Health, U.S. Centers for Disease Control and Prevention (CDC), a consortium of Romanian governmental and nongovernmental agencies conducted nationally representative surveys of women of reproductive age (15 to 44). The surveys, entitled Reproductive Health Surveys (RHS), assessed a range of reproductive health behaviours, including contraceptive childbearing, use, and abortion, and identified factors that might change the behaviours [17].

Our present study is part of a larger research which refers to the sexual-reproductive health of people from Dolj County, in order to assess reliable data about the reproductive health status and needs of this population.

METHODOLOGY

This study included 661 women (424 at reproductive age 18- 49 years and 237 over 50 years). The participants were randomly selected from the databases of family doctors aiming at creating a balanced group structure from the point of view of residence (urban – Craiova city, or rural - villages across the county), of their educational level (elementary or lower, high school, university studies) and age groups (18-25, 26-35, 36-45, 46-55, 56-65, 66-75 years).

Subjects were asked to answer а questionnaire that included 111 items (addressed to both sexes), plus other eight specific items for women. The questionnaire included mainly multiple choice questions, as well as free-text questions referring to socio-demographic characteristics, sexual life, family planning and contraception, domestic violence and health status. Subjects were informed about the objectives and the questionnaire application methods. Their participation in the research was made as a follow-up of their freely expressed consent, in full awareness, in permanent compliance with the principles of anonymity and confidentiality. Depending on the age, training level and subjects' availability, questionnaires were applied by the interview operators (having the same sex as the participants in the study) in the case of older people and/or with an elementary training level, or by self-filling-in – in the case of young people, with secondary or higher studies. Questionnaires application took place during 2009.

In the field of contraception, the questions contraception addressed referred to current use awareness. past and of contraceptive methods (last three months) and reason for discontinuing or not using a particular method at all. This study only includes contraceptive use reported by women during heterosexual intercourse intercourse that carries a risk of pregnancy. Contraceptive use (to prevent sexually transmitted infections) during other forms of sexual activity is outside the scope of the present study.

Study results were statistically processed using the SPSS program.

RESULTS

Contraceptive knowledge

The best known contraceptive methods for the 18-49 age groups were the calendar method 91.7%, condoms 91.3% and pills 88.4% (Figure 1). Women over the age of 50 had strong knowledge about calendar 81.9%, withdrawal 75.5% and condoms 68.8%. Diaphragm, sponge, cervical cap, vasectomy and basal temperature were less known or used by the entire sample. For fertile women the condom was the best known method in urban areas (94.5%) and the calendar in rural areas (88.7%).

60



Figure 1. Statistical distribution of subjects in the age group 18-49 according to their knowledge of contraceptive methods

Current contraception use

60.4% of the women were currently using contraceptive methods, 62.6% in urban and 57.5% in rural areas. As shown in Figure 2,

the top method of contraception was the condom (29%), followed by the calendar method (24.5%), coitus interruptus (23.6%) and pills (15.6%).



Figure 2. Statistical distribution of subjects according to the recent use of contraceptive methods, by residence area

We observed differences in the usage pattern of contraceptive methods by residence. For the last months, fertile women in urban areas used mainly the condom (37.4%), the calendar method (26.5%) and withdrawal (21.8%). In rural areas the most currently used method was withdrawal (25.8%), followed by calendar (22.0%), condom and pills (18.3%).

Ever-use of Contraception

In our study, ever-use contraception referred at the proportions of sexually experienced women who reported that they (or their male partners) have ever-used each method of contraception at least once, at some time in their lives. In the group of fertile women aged 18-49, the most used methods were condom 48.3%, coitus interruptus 44.1% and the calendar method 43.2% (Figure 3).



Figure 3. Statistical distribution of female subjects according to the age and the past usage of contraceptive methods

Elder women 50+ relied more on traditional methods (withdrawal 59.5%, calendar 54.9%) than on modern method (condom 17.7%). There are statistically significant differences regarding the use of pills (p<0.01) between these two age groups (31.8% vs. 8%).

For women living in urban areas the most used method was the condom in the fertile age group (61.3%) and the calendar in the 50+ age group (81.4%). But in rural areas things were a little bit different – the first places of ever-used contraceptive methods

were taken by traditional methods i.e. withdrawal (47.3% for 18-49 age group vs. 57.8% for 50+) and calendar (38.7% vs. 34.8%) for both of the discussed age groups.

Reason for not using contraception

Figure 4 shows, in the group of women aged 18-49, the main reasons for not using contraception, despite menopause and sexual inactivity, were infertility (4.7%), fear of side effects (4.0%), negligence (4.0%), lack of information (1.9%) and disapproval of family planning (0.9%).



Figure 4. Statistical distribution of the female subjects in the age group 18-49 according to the residence and the reasons for not using contraceptive methods

DISCUSSIONS

According to the last national reproductive survey in Romania [17] the prevalence of current contraceptive use among all women reached 58.1%. In our study the percent is slightly less than those reported by national and international studies. A study across five European countries [8,9] showed that the percent of women currently using contraceptive methods was 77%.

Regarding the contraceptive methods currently used we found almost the same pattern as those recorded at national level. The most commonly used methods amongst all women were the modern ones (condom 33.9%, pills 13.1% and IUD 12.7%) but traditional methods still persist (coitus interruptus 18.9% and the calendar method 5.3%) [17]. In relation to the current usage, and considering all the fertile women, the most popular methods in the order of frequency in Europe were modern methods (OC, condoms and IUD). Specifically, OC were the most often used methods in Germany, France and Sweden, while in UK and Romania the most used method was the condom [1,10]. The patterns of current contraceptive use in our study are consistent with these national data and with other European surveys [1,8-10]. We considered that condoms are the most popular modern contraceptive method because they are easy to use and are relatively discrete, given that use is tied to the incidence of sexual intercourse. Moreover, the condom is a widely available method, does not require a visit to a doctor, and has a relatively affordable price. On the other hand, it has to be purchased in pharmacies or in stores, which may be embarrassing.

Regarding the use of hormonal contraceptives or IUD, several barriers limit their usage, including the existence of certain myths (they cause weight gain, excessive hair growth, cancer or other diseases). Other barriers include the need to

see a doctor for prescription and even the price [4,11].

Methods such as hormonal contraceptives or IUD were prohibited in Romania during the past decades, being available since the 1990s [16]. This could explain the fact that Romania has the lower use of contraception compared with other countries where several contraceptive methods were available decades before.

According to a European surveys, 88.1% of women have ever used a contraceptive method. The most common methods ever used were OC 70.4%, condoms 63.2%, withdrawal 25.5% and IUD 16.3% [1]. Sweden was mentioned to have the highest percentage of ever use about 96.7%, and Romania the lowest 67.4% [1].

Although the level of knowledge of reproductive health information among women living in urban areas seemed to be higher and consistent, among women in rural areas information was often partially accurate and mixed with myths and prejudices ("A lot of people know, but few are aware"), especially due to the lack of information received from health workers.

CONCLUSIONS

Field-based observations and interviews conducted during this study suggest that despite major improvements in the national family planning programme over the past years, traditional methods of contraception still remain common methods of fertility control in Romania. The low efficiency traditional methods are dominant in rural areas and among older people.

While contraception is regarded as a less accessible, more costly and complicated way to prevent a possible problem (a future unwanted pregnancy), women, especially in rural areas, even consider abortion to be a traditional, safe, accessible, quick, and relatively cheap procedure, despite it being unpleasant and stressful. Many of these women encounter logistical and financial problems when they require family planning services.

Modern contraceptive methods are also less available in rural areas; they can only be found in rural pharmacies and in the clinics of family physicians that have been trained and supplied to provide family planning services.

The women's knowledge of suitable methods of contraception is unsatisfactory and represents a challenge for healthcare providers to improve the amount of information available to women in this area. Results highlight differences in contraceptive use by residence; they should be the starting point for new public health strategies.

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COMPARATIVE RESEARCH ON THE PREVALENCE OF INDOOR FUNGI IN PATIENTS WITH AND WITHOUT ALLERGIC PATHOLOGY

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REZUMAT

Obiectiv: Studiul face parte din proiectul PNII Nr. 41-011/2007 și are ca obiectiv distribuția și identificarea fungilor indoor din locuințele pacienților allergici comparativ cu un lot de adulți nealergi, în perioada 1.01.2008-31.10.2009. Material și metodă: A fost evaluat clinico-functional și microbiologic un eșantion format din 56 pacienți allergici cu afecțiuni allergice (în special astm bronsic și/sau rinită allergică), selectionați dintr-un număr total de 220 cazuri, care s-au adresat serviciului de alergologie din cadrul Spitalului Clinic de Boli Infecțioase și Pneumoftiziologie "Victor Babeș" Timișoara, pe baza criteriilor impuse de ghidurile internaționale GINA (Global Initiative for Asthma) pentru astm și ARIA (Allergic Rhinitis and its Impact on Asthma) pentru rinita allergică. De asemenea, a fost constituit un eşantion martor format din 30 persoane neallergice. S-au recoltat probe de aerofloră din locuințele tuturor celor 56 persoane allergice și 30 neallergice, pentru izolarea fungilor indoor. Am utilizat în acest scop analizorul M.A.Q.S (Microbiological air quality sampler - Oxoid) și mediul de cultură Sabouraud Chloramphenicol agar (Bio-rad). După incubarea la 37°C, timp de 48-72 h (până la 4-5 zile), identificarea fungilor proveniți din aerosoli a fost confirmată prin examen microscopic din cultură, pe preparate lamă-lamelă. Rezultate: Din totalul de 214 probe provenite din locuințele celor 56 pacienți allergici, 114 probe provenite din 45 locuințe (80,36%) au fost pozitive. În eșantionul martor s-au pozitivat 72 probe din 24 locuințe (80%) dintr-un total de 140 recoltate. Pe întreg eşantionul, numărul mediu de locații/apartament, în care s-au identificat mucegaiuri, a fost de 1,58, cu o minimă de 0 și o maximă de 5. Concluzii: Procentul locuințelor din care s-au izolat mucegaiuri este asemănător în cele două eșantioane. Speciile de fungi izolați au aparținut cel mai frecvent clasei de mucegaiuri, genul Aspergillus (A.flavus, A.niger, A.fumigatus).

Cuvinte cheie: fungi, sănătate, clădiri, interior

ABSTRACT

Objectives: The study is part of the national program PNII Nr. 41-011/2007 and aims to identify and study the distribution of indoor fungi from dwellings of allergic patients, compared to a group of non-allergic patients, between January 1st, 2008 – October 31 st, 2009.

Materials and methods: A group of 56 patients with allergic pathology (especially bronchial asthma and/or allergic rhinitis) underwent a clinical, functional/physiological and microbiological evaluation. The group was selected from a total of 220 patients who approached the Alergology department of the Clinical Hospital for Infectious Diseases and Pneumology "Victor Babes" Timisoara, based on the criteria from international guidelines: GINA (Global Initiative for Asthma) for asthma, and ARIA (Allergic Rhinitis and its Impact on Asthma) for allergic rhinitis. Furthermore, a control group was made up of 30 nonallergic patients. In order to isolate indoor fungi, air microflora samples were collected from the dwellings of the 56 allergic patients, and of the 30 non-allergic patients. The samples were analyzed using the automated M.A.Q.S (Microbiological air quality sampler - Oxoid) and the Sabouraud Chloramphenicol Agar (Bio-Rad). Following a 48-72 hour (and up to 4-5 days) incubation at 37°C, the identification of fungi from aerosols was confirmed through microscopic examination of samples colected from the cultures, mounted on slides with cover slips. **Results:** Of the total of 214 samples from the dwellings of the 56 allergic patients, 114 samples from 45 dwellings (80,36%) were positive. In the control group, 72 samples from 24 dwellings (80%) turned out positive, from a total of 140 collected samples. In total, the mean number of areas/dwelling in which moulds were identified, was of 1.58 with a minimum of 0 and a maximum of 5. Conclusions: The percent of dwellings in which moulds were isolated is similar in both allergic and non-allergic patient groups. The species of fungi most frequently identified belong to the Genus Aspergillus (A. flavus, A. niger, A. fumigatus).

Keywords: fungi, health, buildings, indoor

INTRODUCTION

As no microorganisms have air as specific environment, the atmosphere does not have its own flora, but it contains, at all times, microorganisms from the ground, water, vegetation, animals and humans. The density of these microorganisms varies depending on the proximity to the ground, although they can exist at high altitudes or on the surface of large bodies of water, away from the shores. The early research of Proktor and Parker (1938) has shown that even above 5.000 m of altitude some bacteria (Bacillus subtilis, Bacillus albolactis) and fungi (Penicillium globrum, Penicillium lanosum) can be found. More recently, Green and collaborators (1964) have found fungi at up to 27.500 m of altitude, especially from the Alternaria, Aspergilus and Cladosporium genus, and Zahell (1942) has identified bacteria and fungi above the sea surface at distances of up to 740 km from the shore [1].

Most microorganisms from the air come from nature. Some come from animals and humans. The frequency and type of microorganisms depend on the places where we look for their presence. Thus, in scarcely populated places, microorganisms from nature will prevail. The structure and density of the air microflora changes in highly populated places [2]. Besides germs from nature, germs adapted to animal and human parasitism will be present, their density in the air increasing in direct proportion to the density of the population.

Therefore, there are two groups of microorganisms in the atmosphere (flora from nature and flora of animal or human origin). The air flora from nature plays an important part in various biological processes (fermentation, biodegradation of certain substances etc.) and in human pathology, as it can comprise allergens. Human mycoses with natural fungi are relatively rare [3].

The air is of utmost importance in epidemiology, being the transmission route for a large number of pathogenic agents. Airborn infectious diseases are the most frequent, at least in the temperate climate, and represent around 20% of all infectious diseases [4].

Air survival of germs of animal or human origin depends on certain factors. Generally, the air does not offer conditions for the development of human flora, its survival certain being limited by favourable conditions. Thus, air temperature varies greatly, and only occasionally corresponds to the optimal condition for the metabolism of the mezophile flora (35°-40°C). Humidity also fails to meet the requirements of bacteria from this group, as the relative humidity is generally low and presents permanent variations [5]. The air lacks any nutritive substrate for microorganisms that are animal or human parasites. In addition to these unfavourable factors, some agents have bactericide or bacterostatic action, such as UV radiations. Under these circumstances, the development of these microorganisms is not possible, onlv resistance in various degrees may develop. From this point of view, microorganisms greatly differ, their biological characteristics determining their potential of survival in the environment. Fungal spores and sporulated bacteria have the greatest resistance, followed by vegetative forms of bacteria and viruses [6].

The period of time in which a germ eliminated by a diseased or carrier person can infect a receiptive organism is limited, although it varies from one species to another. Also to be noted, the number of pathogenic germs decreases rapidly in the atmosphere thev because are easilv destroyed and diluted. From these considerations, in the outdoor atmosphere where negative factors have a more pronounced action and dilution is much greater, the pathogenic air flora plays a less important part than indoors. Therefore, indoor air flora is the key factor - and well documented - in the airborne transmission of infectious diseases, especially in conditions of crowded or insufficiently ventilated places [7,8].

For these reasons, indoor air microflora constitutes an important sanitary issue in dwellings, dorms, offices, public buildings and especially in hospitals, health care units, schools and nurseries, where airborne transmission of infections occurs easily (high density of persons and large number of carriers).

The common sources of airborne germs are the upper airways, the mouth/oral cavity, the surface of the skin (especially lesions or pus/wound secretions), and animal or human droppings. Also, there is a conditionally pathogen flora ubiquitous in nature (*Coccidioides, Histoplasma, Criptococcus* etc.), as well as fungi and actinomycetes responsible for extrinsic allergic alveolitis [9].

MATERIALS AND METHODS

This study is part of the PREVALERG project, national program PNII - Nr. 41-011/2007, whose objective is the identification indoor fungi of from dwellings of allergic patients with allergic rhinitis and/or bronchial asthma, compared to a control group of non-allergic patients, between January 1st, 2008 – October 31 st, 2009.

A group of 56 patients with allergic pathology (especially bronchial asthma and/or allergic rhinitis) was selected from a total of 220 patients who addressed the Allergology department of the Clinical Hospital for Infectious Diseases and Pneumology "Victor Babes" Timisoara, based on the criteria from international guidelines: GINA (Global Initiative for Asthma) for asthma, and ARIA (Allergic Rhinitis and its Impact on Asthma) for allergic rhinitis. The group was initially composed of 58 patients, but 2 patients refused to allow the study team to collect air samples from their homes. The patients underwent clinical, functional/physiological and microbiological evaluations. Furthermore, a control group of 30 non-allergic patients was included.

Samples of air flora were collected from the dwellings of all the 56 allergic patients and 30 non-allergic patients (kitchen, bathroom, rooms, closed balconies), in order to identify indoor fungi.

The samples were collected using the automated M.A.Q.S (Microbiological air quality sampler - Oxoid) and cultivated on Sabouraud Chloramphenicol Agar (Bio-Rad). Following a 48-72 hours (and up to 4-5 days) incubation at 37°C, the identification

of fungi from aerosols was confirmed through microscopic examination of samples collected from culture plates, mounted on glass slides with cover slips.

RESULTS

Of the total of 214 samples collected from the dwellings of the 56 allergic patients, 114 samples (from 45 dwellings) were positive (Figure 1). In the control group, 72 samples (from 24 dwellings) turned out positive, from a total of 140 collected samples (Figure 1).



Figure 1. Distribution of samples collected from dwellings

Of the 56 allergic patients remaining after the exclusion of 2 patients who refused to allow the study team to collect air samples from their homes, 30 patients were women and 26 men. The control group included 16 women and 14 men (Table 1).

	Patients		Controls	
Gender	No.	%	Nr.	%
Women	30	53.37	16	53.33
Men	26	46.63	14	46.67
TOTAL	56	100	30	100

Table 1. Gender distribution of the investigated population

Regarding age distribution, the average age in the group (patients/controls/total?) group was 33,26 years, the median was 31 years, the minimum age was 5, and the maximum was 52. Following the cutaneous prick-test, and the determination of IgE specific antibodies to determine a possible allergic component/vector, 26 patients were diagnosed with bronchial asthma, 17 with allergic rhinitis, and 13 with allergic rhino-conjunctivitis (Table 2).

Table 2. Distribution of patients based on diagnosis

Diagnosis	Nr.	%
Extrinsic bronchial asthma +	26	46.43
allergic rhinitis (possibly associated		
with another allergic pathology)		
Allergic rhinitis (possibly associated	17	30.36
with another allergic pathology, but		
without bronchial asthma)		
Allergic rhino-conjunctivitis	13	23.21
TOTAL	56	100

Of the total of 214 samples collected from patients' dwellings, 114 samples were positive, and 135 strains of fungi were identified. In the control group, from the

140 collected samples, 72 were positive, and 72 strains of fungi were identified (Figures 2 and 3).



Figure 2. Distribution of positive and negative samples in various home locations – Control group



Figure 3. Distribution of positive and negative samples in various home locations – Patients group

The species of fungi isolated from dwellings belong, most frequently, to the moulds class, Genus *Aspergillus: A. flavus, A. niger, A.* *fumigatus*. In the control group, *A. flavus* prevailed, and in the patients group, *A. niger* was predominant (Figure 4).



Figure 4. Species distribution of isolated and identified strains

Most of the identified strains were isolated from bedrooms and living rooms of patients,

and in the bedrooms and balconies of the control group (Figure 5).



Figure 5. Frequency of moulds isolated in various home locations

A comparison was made between the percent of moulds isolated in various locations. The comparison produced

significant statistical differences only in the case of *Aspergillus flavus* which predominated in bedrooms versus balconies

(p<0.05). In the same location, there are significant statistical differences between *Aspergillus niger* or *Aspergillus flavus* versus *Aspergillus nidulans* strains, in bathrooms; whereas in bedrooms the strains of *Aspergillus flavus* predominate over *Aspergillus fumigatus* strains. In kitchens, the strains of *Aspergillus niger* were more frequently isolated than other species, and in living rooms the strains of *Aspergillus flavus* were isolated in statistically significant percents as compared to the other species.

DISCUSSION

Contemporary advances in science and technology had remarkable positive impacts on the population, but at the same time they produced negative consequences both on human health and on the environment.

The increased diversity of the environment factors with noxious health effects has raised numerous concerns with health professionals. Some of the most frequent conditions observed in medical practice, in both children and adults, are respiratory tract infections.

Although the incidence and prevalence of respiratory infections are significant, the mortality rate associated with these conditions is relatively low [10].

Respiratory infections and contemporary allergic factors favour the development of chronic respiratory diseases – recurrent chronic bronchitis, bronchial asthma and others.

A series of epidemiologic studies have pointed out that domestic exposure to moulds and/or chronic moisture can increase the incidence and morbidity associated with asthma and difficult breathing in both children and adults [11,12].

The health effects of the environment are a public health issue, with the purposes of preventing disease and promoting the population's well-being in relation with the environment - through theoretical and approaches, from policies practical to and instruments aimed methods at identifying, evaluating, preventing, reducing compensating and the effects of environmental factors on human health.

CONCLUSIONS

- In both groups of allergic and nonallergic patients, the strains of *Aspergillus* spp. Prevailed over all the other species.
- In the control group the most frequently isolated were *Aspergillus flavus*, whereas in the allergic patients group *Aspergillus niger* and *Aspergillus fumigatus* prevailed.
- The frequency of mould strains isolated in various rooms of the house did not show significant statistical differences between the two groups i.e. allergic and nonallergic.
- There were no differences regarding indoor fungi between allergic patients with prick-tests positive for moulds/fungi versus patients with allergic symptoms but with negative cutaneous tests for these types of allergens.

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STUDY REGARDING SOME FACTORS THAT MAY INFLUENCE MATERIAL, BIOLOGICAL AND FAMILY LIFE QUALITY OF CHILDREN WITH CHRONIC DISEASES

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REZUMAT

Condițiile socio-economice ale familiei sunt strâns legate de posibilitățile de îngrijire, recuperare, inclusiv educaționale ale copiilor cu diverse boli cronice, care la rândul lor condiționează integrarea socio-profesională și șanse egale pentru împlinirea lor în viața de adult. Scopul studiului nostru este acela de a identifica și analiza principalii factori determinanți care pot contribui și influența calitatea vieții copiilor cu boli cronice. Am realizat un studiu observațional, descriptiv, bazat pe metoda chestionarului, pe un grup de 67 copii cu boli cronice. Principalii factori care pot avea impact asupra calității vieții copiilor cu boli cronice, identificați în urma studiului sunt: venitul familiei, gradul de angajare a părinților în activități aducătoare de venituri constante, nivelul scăzut de educație a părinților, numărul membrilor familiei, familia monoparentală, condițiile de locuire și prezența bolilor cronice la alți membri ai familiei.

*Cuvinte cheie:*calitatea vieții, copii, boli cronice ,factori socio-medicali, aspecte familiale

ABSTRACT

Family socio-economic conditions are strictly linked with the possibilities of care, rehabilitation and education of children with different chronic diseases, which in their turn, may influence their social and professional integration and their equal chances in life.

The aim of our study is to identify and analyze the main determinant factors which can contribute and influence life quality of children with chronic diseases. We performed an observational, descriptive study, based on the method of enquiry, on 67 children with chronic diseases. The main factors that may have impact on life quality of children with chronic diseases identified by our study are: family income, the level of parents engagement in activities which can bring constant income, low educational level of the parents, the number of family members, single parent family, housing conditions and the presence of chronic diseases in other family members.

Keywords: life quality, children, chronic disease, socio-medical factors, family aspects

INTRODUCTION

High risks of getting ill and die and the high vulnerability due to age, special needs of family, social, educational and medical protection, in infantile population, may determine an increase of potential life years lost, with negative effects on the future development of society. The socioeconomic conditions of the family are strictly linked with the possibilities of care, rehabilitation and education of children with different chronic diseases, which, in their turn, may influence their social and professional integration and their equal chances in life [1-4].

This study is setting to identify and analyze the main aspects of social and family environment which may contribute to and influence the quality of life during childhood, in a special category of children, i.e. those with chronic diseases.

MATERIAL AND METHOD

We performed an observational, descriptive study, based on the method of enquiry using a questionnaire with 15 questions regarding general aspects, family data, housing conditions, economic situation of the family and aspects regarding the health status of family members. applied We the questionnaire in 67 children and adolescents with chronic diseases such as diabetes mellitus, chronic kidney disease under dialysis, leukemia, juvenile arthritis, celiac disease, admitted in Pediatric Clinic No. II between January and June 2008 for treatment or active monitoring, and who had been diagnosed with the chronic disease two years prior to the study. The answers were processed using Microsoft Excell.

RESULTS

The gender (33 children – 49.25% males and 34 children – 50.75% females) and background distribution (34 children-50.75% from urban area and 33 children – 49.25% from rural area) were relatively even in the studied group. The interviewed children were aged between 6 and 18 years, half of them adolescents (41 children – 61.19%).

The majority of the subjects have parents of active age, professionally productive (97.02% of the mothers - 65 and 95.52% of the fathers-64) and they are coming from families who have other children in care (53 children – 79.1%) (Table 1).

 Table 1. Distribution of subjects according to the number of siblings

Noof	Total		
iNO. 01	no.	%	
sionings	67	100	
0	14	20.90	
1	22	32.84	
2	18	26.87	
3	7	10.45	
4	3	4.48	
5	2	2.99	
Over 5	1	1.49	

Most of the children are Romanian (77.61% - 52) and Orthodox Christians (73.13% - 49). Regarding the instruction level of the parents we observed that a few over a half of the children have parents with high

school and university education (56.72% of the mothers - 38 and 59.70% of the fathers - 40), while a third of parents have a low education level (Figures 1,2). Most of the subjects are coming from legally constituted
families and 11.95% (8 children) are living in single parent families. Almost a half of the subjects have working parents, while more than a third have unemployed parents (44.78% of the mothers - 30 and 37.32% of the fathers - 25).



Figure 1. Distribution of subjects according to the education level of mothers



Figure 2. Distribution of subjects according to the education level of fathers

A majority of 77.61% of the subjects (52 children) are coming from families with multiple members, who are living in the property of their parents or relatives (83.58%- 56 children), but many of them in a restricted space (32.84% - 22 children), situation which may cause problems with respect to adequate housing conditions. Most of the families have a low and very low monthly income, if we are taking into

account the number of family members (Figure 3). In the studied group there are children who declared that they have parents (31.34% mothers – 21 and 10.45% fathers - 7) or brothers and sisters (4.48% - 3 children) with chronic conditions and we noted a high percent of the subjects who have visited the doctor more than five times during the previous three months (Figure 4), more than once a month.



Figure 3. Distribution of children according to the estimated level of their family monthly income



Figure 4. Distribution of children according to the number of medical consultations during the last three month

DISCUSSIONS

In our study we observe that the majority of parents are young, at the age of full social and economic activity, spending most of the time at the workplace. This may cause less time spent on surveillance, education and taking care of their children, which can have an impact on life quality, especially in children with chronic diseases, who have more needs to fulfill (time spent with treatment, hospital care, rehabilitation).

The number of children in a family influences material status which, as a consequence, will have an impact on the health status of the family [5,6]. In the group studied by us, even if the nuclear family structure was predominant (same model found in the study performed by the Institute for Life Quality Research in 2010) [7], we recorded many cases of children coming from numerous families. These families who additionally have children with chronic illnesses are more exposed to social dependence and could have difficulties in maintaining their health.

In our study we observed that a third of the parents have a low education level, which cause understanding difficulties can regarding the existence of chronic diseases their children. impairing their in collaboration with the medical team and with other specialists involved in monitoring and rehabilitation activities [8]. From a different perspective, a higher level of education will facilitate access to better payed jobs, which will enhance the material and health status of the family [9,10]. We observed that some of the subjects did not answer to these questions (10.45% did not give details on the mother's level of instruction - 7 children and 14.93% on the father's level of instruction – 10 children). This fact may be the result of distant childparent relationships, defficient communication between children and parents, or is due to the small age of some of the interviewed children.

A percent of 11.95% of subjects are living in single parent families, situation known to inducing a higher risk of poverty with impact on the health status and life quality [9,11].

The material conditions have a high impact on education, health, proffesion, leisure time or subjective wellfare [7,11]. An important percent of parents only have sporadic occupations or even no income generating occupation, this fact being important especially in the case of chronically ill children due to the additional financial efforts that have to be made in order to treat, rehabilitate and integrate them. The family size has impact on life quality because it has an influence on income distribution, the level of comfort and hygene in the living place. Official statistical data and also other researches acknowledge that most of Romanian households are formed of two to three persons (a quarter of each) [7,12-14] . Yet, in our study, most of the subjects are coming from numberous families who are sharing a limited living space. If adding a low socio-economical status we may conclude that these families are at risk of depletion and morbidity.

An important determinant of life quality is the level of family income. The European Statistics Institute (EUROSTAT) data show that, in 2008, Romania occupied the last position in the European Union in terms of incomes, the average individual yearly income in Romania being 2323 Euro [15]. Only 77.61% of the children questioned have answerd to the question regarding their family income probably because at this age they do not have concrete information about the financial aspects of the family in quantitative terms and they make an approximation using qualitative terms ("we don't have enough money"). The majority of them have evaluated their family income below 1500 RON, with an important percent of those with a family income below 600 RON (32.84%). This means that for many families this income is less than the minimum granted income (depending on the number of family members), it cannot satisfy the basic requirements of a family and, furthermore, the fulfilment of the special needs inherent to chronic diseases become impossible to support. Due to the high risk of relapses and complications of chronic diseases, these will have an impact on life quality of these children.

The existance of other family members with chronic diseases makes the family socioeconomical situation even more difficult.

The high percent of subjects with more than five visits to the doctor during the previous three months shows that their diseases are not stabilized, predispose them to other conditions and determine long periods of hospital admission with cumulation of long periods of absence from family environment and from school, which have impact on the quality of life.

CONCLUSIONS

The socio-medical factors that may have an impact on the quality of life in children and adolescents with chronic diseases, which were identified after our researches are mainly: monthly family income, low and very low in most of the cases, linked to the number of family members (in many cases numerous) and the level of parental engagement in activities which can bring constant income; low educational level of the parents, single parent families, housing conditions and the presence of chronic diseases in other family members. All of these factors are influencing each other and are increasing the negative effect on individual quality of life, therefore the measures necessary for their early prevention and identification are complex. In order to achieve this we propose the following:

• To set up and organize a Social Pediatrics Network at the community level, supported by the government,

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the local authorities and NGOs, which will integrate all the sociomedical and legal assistance measures, specific and adapted to each child at risk of getting ill, or already diagnosed with a chronic disease.

- Support from the local community and sponsors addressed to the underprivileged families who have children with chronic diseases, in order to facilitate adequate life conditions, income and the eployment of at least one parent or the protection of parents against unemployment.
- Improve the compliance to the community offer on socio-medical services of monitoring, rehabilitation and integration of children with chronic diseases.
- Improve the educational management by setting a community interdisciplinary network composed of teachers, psychologists, school doctors. social workers, legal sociologists, advisors. who will identify, counsel, assist and monitor the pupils and their families who are in situations socio-medical. at familial and economic risk.
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INTRODUCTION

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