

**THE FOURTH ROMANIAN-GERMAN SYMPOSIUM ON
OCCUPATIONAL MEDICINE**

Between the 11th and 14th of October 2006 in Iasi was held the Fourth Romanian-German Symposium on Occupational Medicine, organised by:

- THE INSTITUTE OF PUBLIC HEALTH IASI, ROMANIA
- THE INSTITUTE OF OCCUPATIONAL MEDICINE, CHARITÉ – UNIVERSITÄTSMEDIZIN BERLIN OF THE FREIE UNIVERSITÄT BERLIN & HUMBOLDT-UNIVERSITÄT ZU BERLIN, GERMANY
- THE GERMAN CULTURAL CENTRE IASI, ROMANIA

The main topics were:

1. **Noise related health risk** – data and consequences
2. **Small and medium-sized enterprises** – occupational risk management
3. **Infectious diseases in occupational medicine**
 - 3.1. Avian flu – occupational health aspects
4. **New technologies and their meaning for occupational health and safety**
 - 4.1. Data acquisition and processing for ergonomic workplaces
 - 4.2. New safety technique in fire security and occupational health aspects
5. **Experimental toxicological findings** – implementation in health protection at the workplace
6. **Indoor air quality**
7. **Specials**

ROUND TABLE: Occupational Health and Safety on Young Employees

Moderators:

Prof. Dr. med. Gustav Schäcke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

Dr. Doina Popa, senior researcher

Institute of Public Health Iasi, Romania

WORKSHOP I: Visit of Industrial Unit

WORKSHOP II: Occupational Health Risk Evaluation of the Visited Workplaces

Abstracts

ABSTRACTS

Abstracts have been accepted for Oral Presentation Sessions and Poster Discussions. Authors are responsible for the spelling and syntax that appears in their abstracts.

OFFICIAL OPENING/SHORT CONFERENCE

AGE AND WORK ABILITY

G. Schäcke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

Since a couple of years the social policy deals with the extension of working life. In some countries the target of this discussion is to increase the statutory retirement age.

The main basis of this discussion is given by different socio-political and financial considerations. By the knowledge of medical sciences we know quite well, that the increase of age may be combined with a more or less adverse health changes and the reduction of work ability. In occupational health sciences those problems are not new. But if we use terms as “younger”, “elder” or “old”, we have to define them to clear what is ment by those terms. Ageing processing is well known for many organs and apparatus. That knowledge must be converted into preventive occupational health guidelines to meet age related abilities.

Different endogenic and exogenic factors my influence work abilities:

- Genetic disposition,
- Physical disposition,
- Psycho-mental disposition,
- Eating habits,
- Addictions,
- Occupational physical stress,
- Occupational psycho-mental stress,
- Exposure to hazardous occupational and environmental compounds,
- Medication due to acute and chronic diseases.

Many reference values and limit values have to be verified for their dependency on age. If the statutory retirement age must be increased, the lawgiver has to ensure an appropriate occupational health protection before.

Correspondence:

Prof. em. Dr. med. Gustav Schäcke

Charité Universitätsmedizin Berlin
Freie Universität Berlin & Humboldt-Universität zu Berlin
Institut für Arbeitsmedizin Berlin
Ostpreussendamm Nr. 111
12207 Berlin, Germany
E-mail: gustav.schaecke.berlin.arbmed@t-online.de

NEW TECHNOLOGIES AND THEIR MEANING FOR OCCUPATIONAL HEALTH AND SAFETY

Chairpersons:

Prof. Dr. med. Gustav Schäcke

Dr. Doina Popa, senior researcher

NEW SAFETY TECHNIQUE IN FIRE SECURITY AND OCCUPATIONAL HEALTH ASPECTS

FIRE DEFENCE BY OXYGEN DEPLETION AND OCCUPATIONAL HEALTH

G. Schäcke, D. Groneberg, Miriam Molliné, Geraldine Preuss, C. Scutaru, Beate Wiedicke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

When halogenated extinguishing agents were banned due to their toxicity, other [fire extinguishing systems](#) has been designed. One of those procedures is to reduce the oxygen concentration down to approximately 13 Vol.% in the ambient air at the workplace to be protected. But we have to consider that oxygen is indispensable to life when employees work at those workplaces with an oxygen-depleted atmosphere. In general the quality of the air at workplaces should fulfil two conditions at least: a) sufficing oxygen concentration of for all levels of stress, b) practically no hazardous compounds. Nowadays certain office areas or control rooms are clean, air conditioned, but packed with combustible electronic equipment. If in those areas oxygen of the atmosphere is depleted, the acceptability of such an environment has to be controlled for preventive occupational health and sociolegal reasons connected herewith. In a study we examined 76 employees being destined to work in an oxygen-depleted atmosphere. The standardised examinations included a sophisticated test of lung function, cardiocirculatory function, and blood gas analysis at rest and under submaximal ergometric exercise. One third of the group showed findings, which induced us to shorten the scheduled examination interval of three years down to two or one year. We observed a reduction of oxygen concentration down to 40 mmHg (mean 50 mmHg). Such a reduction of oxygen in the arterial blood under a stress of 100 W reasons the following sociolegal question: If an employee suffers a cardiocirculatory or cerebrovascular attack while working in an oxygen depleted atmosphere, could he have survived such an incidence for at least 12 month compared to work in a not oxygen depleted atmosphere? If the employee would not survive the incidence or pass away within in period of less than one year after incidence, the employee or his relatives may be compensated for the sequelae of the incidence. Those sociolegal aspects require a well-based management of the preventive occupational health survey.

Correspondence:

Prof. em. Dr. med. Gustav Schäcke

Charité Universitätsmedizin Berlin

Freie Universität Berlin & Humboldt-Universität zu Berlin

Institut für Arbeitsmedizin Berlin

Ostpreussendamm Nr. 111

12207 Berlin, Germany

E-mail: gustav.schaecke.berlin.arbmed@t-online.de

DATA ACQUISITION AND PROCESSING FOR ERGONOMIC WORKPLACES

EVALUATION OF LUMBAR LOAD IN OCCUPATIONAL WORK

A. Luttmann, M. Jäger

Institute for Occupational Physiology at the University of Dortmund, Germany

Disorders of the musculoskeletal system represent the main cause for absence from work. In particular, low-back disorders are found in occupations involving frequent load-manipulation tasks or working in trunk-flexed postures. Mechanical overload of the spine has to be considered as one of the main reasons for the development of such disorders. In consequence, for the evaluation of such work quantification of the mechanical lumbar load is needed, which is performed commonly by applying biomechanical model calculations. For this purpose, a comprehensive biomechanical human model called *The Dortmund* was developed, which allows the determination of torques, compressive and shear forces at the lumbar intervertebral discs for all load handlings and body postures occurring during occupational work. Examples of biomechanical analyses regarding various occupational activities such as surface construction, garbage removal and health care work will be presented. Assessment of the work is possible by comparing the load on the lumbar spine with the mechanical strength of the lumbar elements. To this end data regarding the compressive strength of post-mortem lumbar segments were collated from the literature and critically analysed. Data were summarized with respect to age and gender in form of the *Dortmund Recommendations*. This evaluation procedure is appropriate for short-term activities lasting up to few working shifts. It is preferably used to evaluate the ergonomic conditions of a defined work or workplace. For the recognition of a degenerative lumbar disease as an occupational disease the load occurring during the total working life has to be considered. To this end, in Germany the *Mainz-Dortmund Dose Model* is commonly applied, which is characterized by the accumulation of all single loadings during the working life to a life-time dose. The examination of the work-related presuppositions for the recognition as an occupational disease is performed by comparing the life-time dose with respective recommended values.

Correspondence:

Prof. Dr. rer. nat. Alwin Luttmann

Institut für Arbeitsphysiologie an der Universität Dortmund

Ardeystr. Nr. 67

44139 Dortmund, Germany;

E-mail: luttmann@ifado.de

ASSESSMENT OF THE ERGONOMIC ASPECTS IN AN OFFICE

Delia Cheptănariu, Sorina Doroftei, Cristina Petrescu, Oana Suciu, Salomeea Putnoky, Elena-Ana Păuncu, Florina Gherman, Madia Hanna

University of Pharmacy and Medicine "Victor Babes" Timișoara, Romania

Nowadays, personal computers have proliferated in the offices, so the Occupational Health Departments are paying more attention to ergonomic issues.

In this study, we put in evidence the relationship between working in an office with a computer and some diseases which affect the health status. We took into consideration 58 employees from the same modern office, each of them working with a computer, in a sitting position. They work for 8 hours per day, having only two organized breaks. In order to collect

Abstracts

the data, we asked those employees some questions about symptoms present at the workplace, working postures, lighting quality, visual discomfort, workload, work tasks, efficiency, performance, number of sick leaves per month, etc. We applied this checklist during 2004 and 2005, 3 times per each year. The results put in evidence the presence of the following: low back pain (86 %), stress-related diseases (75 %), wrist tendonitis (44 %), trapezius myalgia (23%), epicondylitis (13%), blurred or double vision (4 %), progressing myopia (5%), tearing and itching eyes (2 %), carpal tunnel syndrome (1%), venous insufficiency (6%), headache (25%). In this case, the errors done while working with computers are: prolonged, sustained keying, sitting posture and mouse use, feet not properly supported on the floor surface or by a suitable foot rest, overloaded work, elbow resting for long periods on a hard surface, tensed forearm and shoulders, wrists and elbows flexed for hours, shield light sources, improper positioning of the monitor screen of the computer, insufficient lighting. In order to improve this workplace and in the same time to increase the productivity, it's important to do first the hazards identification, the assessment of ergonomic efforts, the specific measurements and proper surveillance of the hazards, then to educate users and find ways to diminish the exposure.

Correspondence:

Prep. univ. Dr. Delia Cheptănariu

Medic specialist

Universitatea de Medicina și Farmacie Timișoara

Str. Uta Ioan Colonel martir nr. 2

300041 Timișoara, Romania

E-mail: dorodel@yahoo.com

EXPOSURE ASSESSMENT FOR THE HOUSE CARING PERSONAL BY MEANS OF TIME RECORDING SOFTWARE

C. Scutaru, G. Schäcke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie

Universität Berlin & Humboldt-Universität zu Berlin, Germany

Within the last years house care work in Germany experiences a big expansion; this fact raises questions about the workplace exposure of those employees concerning stress and strain factors. The workplaces for house care personnel are very different compared to the clinical ones, because the households are the patients live in do not have the same equipment. In order to assess the risks of those employees are exposed to it is necessary to know how their workshift is scheduled, and what this person is doing while working.

Method: We examined the daily work shift, more specifically with intensive care patients. A software was programmed in order to record the actions those persons do while working. For saving the data we used a Tablet PC from IBM, as this equipment is light and small. The software is database linked, which makes it very easy for maintenance. In the database a multitude of combinations *action-body position* these persons could perform is saved, which, for better understanding are grouped in some registers. For example a register contains possible situations which may occur on the way to the workplace. Additionally the body position and the time interval in which these actions are performed are saved. All the gathered data are exported to Microsoft Excel® for further data analysis. **Results:** A first result was to observe two different groups of persons, the ones who are working an entire shift with only

Abstracts

one patient, and a second group where those persons who are only supplying the patients, and therefore go from patient to patient. Based on this observation we separated the persons in two different groups for further analysis. The analysis shows a very broad spectrum of actions which are performed. It is possible to correlate three factors: *action-body position-time*. We can visualise the course of an entire shift, to summarize the whole shift, in terms of actions or body positions. All of these parameters help when it comes to assess the load at the workplace.

Conclusions: With this system it is possible to record very accurately (seconds) the actions and body positions of a person, which makes it possible to assess the possible risks related to the workplace. The software can be used for any workplace analysis.

Correspondence:

Dipl. Ing. Cristian Scutaru

Charité Universitätsmedizin Berlin

Freie Universität Berlin & Humboldt-Universität zu Berlin

Institut für Arbeitsmedizin Berlin

Ostpreussendamm nr. 111

12207 Berlin, Germany

E-mail: scuty@gmx.de

INDOOR AIR QUALITY

Chairpersons:

Dr. med. Elke Brinkmann

Dr. ing. Brigitte Scutaru, senior researcher

NITRIC OXIDES AS AIRBORNE HEALTH HAZARDS IN OCCUPATIONAL MEDICINE AND ENVIRONMENTAL MEDICINE

D. A. Groneberg

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin and Department of Respiratory Medicine, Hannover Medical School, Germany

Epidemiological and toxicological studies have demonstrated an association between different levels of air pollution and various health outcomes including mortality, exacerbation of respiratory diseases and cardiovascular diseases. Especially traffic workers are exposed to high levels of motor vehicle generated air pollutants. Diesel exhaust particles account for a highly significant percentage of the particles emitted in urban and rural areas. Apart from particulate matter, nitric oxides may account for a major burden of disease. Acute effects of nitric oxides can include an irritation of the respiratory tract. Chronic exposures can be related to adversary longterm effects. It is also likely that such effects may be even more detrimental in subjects suffering from airway diseases. Questions remain concerning the relevance of exposure levels and whether experimental findings in animal models can be extrapolated into humans. It is therefore imperative to further assess acute and chronic effects of nitric oxides in mechanistic studies with careful consideration of exposure levels.

Correspondence:

Prof. Dr. med. David Groneberg

Charité Universitätsmedizin Berlin

Freie Universität Berlin & Humboldt-Universität zu Berlin

Abstracts

Institut für Arbeitsmedizin Berlin
Ostpreussendamm Nr. 111
12207 Berlin, Germany
E-mail: David.Groneberg@charite.de

PUBLIC EXPOSURE TO INHALED RADON AND THORON PROGENY INDOORS

Olga Iacob, C. Grecea

Institute of Public Health Iasi, Romania

Introduction: Inhalation of radon and thoron progeny indoors represents the dominant component of population exposure to natural radiation sources. The paper updates the radiation doses received by the Romanian population from the annual exposure to short-lived decay products of radon isotopes in indoor air and estimates the radiation-induced lung cancer risk. **Methods and materials:** Radon and thoron short-lived decay products concentrations were measured in 760 typical urban and rural Romanian houses, randomly selected throughout the country. The method used to determine the volumetric activity of ^{218}Po , ^{214}Pb , ^{214}Bi and ^{212}Pb is the active one of sucking a known volume of air through an open-faced high-efficiency filter paper and counting the deposited activity with a ZnS(Ag) alpha scintillation counter. A computer program was developed to solve the decay equations for obtaining the activity concentrations of daughters in air, to calculate the equilibrium equivalent concentration (EEC), the potential alpha energy concentrations and the equilibrium factor. Internal exposure due to inhalation of radon and thoron progeny indoors and outdoors were expressed in terms of effective dose, individual and collective. **Results and conclusions:** Population-weighted averages of EECs of radon and thoron indoors were 25 Bq m^{-3} and 1.1 Bq m^{-3} respectively, with the corresponding average annual per capita effective dose of 1.88 mSv and 0.37 mSv. Outdoors values of EEC were 5.7 Bqm^{-3} for radon progeny and 0.3 Bqm^{-3} for thoron progeny and the correspondent annual per capita effective doses were 0.14 mSv and 0.04 mSv, 0.18 mSv. The overall annual per capita effective dose arising from internal exposure to inhaled radon isotopes was estimated at 2.43 mSv with an associated annual collective effective dose of 55112 man Sv.

Correspondence:

Dr. fiz. Olga Iacob

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: olga_iacob@yahoo.com

CONSIDERATIONS ABOUT ONE CASE OF CHRONIC INTOXICATION WITH CARBON TETRACHLORIDE

I. Toma¹, M. G. Bunescu¹, Iulia-Rahela Marcu¹, M. B. Toma²

1. University of Medicine and Pharmacy, Craiova, Romania

2. Medical Center "TOMMED" Craiova, Romania

Abstracts

Introduction: This study presents a clinical case of chronically poisoning with carbon tetrachloride, of an industrial painter, hospitalized at Craiova's Work Labour Clinic.

Methods: The patient had been painting using a spray-gun for 7 years, with carbon tetrachloride used for degreasing the parts. The studied parameters: the chemical toxin's level at the workplace (above the maximum admitted level), the increase of existing chemical toxins occasionally exposed remarks regarding the efficiency of individual and group safety measures. The disease development: the 35 years old patient, a painter, is hospitalized for nausea, as occasional throw-ups, sleeping disorder, vertigo, osteoarticular disorders, dyspnea. **Diagnosis:** Carbon tetrachloride poisoning (the neuraxis affected). **Treatment:** vitamins, mild neuroleptics. **Positive development:** after three hospitalizations the patient's overall condition had improved, also the biological samples. The anamnestic investigation carried-out on the exposed workers, revealed three other employers which suffered from neurological and hepatitis disorders, which will be investigated for determining the precise diagnosis. **Conclusions:** carbon tetrachloride is an aggressive toxin for the exposed human organism, when the maximum limits are exceeded.

Correspondence:

Prof. univ. Dr. Ion Toma

Medic primar

Universitatea de Medicina și Farmacie Craiova

Str. Petru Rareș nr. 4

200349 Craiova, România

E-mail: itoma@umfcv.ro

SMALL AND MEDIUM-SIZED ENTERPRISES – OCCUPATIONAL RISK MANAGEMENT

Chairpersons:

Prof. Dr. med. David Groneberg

Dr. Eugenia Dănulescu, senior researcher

SAFETY AND HEALTH ISSUES IN SMALL AND MEDIUM ENTERPRISES FROM MOLDOVA REGION

Brigitte Scutaru, Doina Popa, Eugenia Dănulescu, V. Cazuc, Valeria Hurduc, A. Maftai, Carmen Cozmei, Carmen Croitoru, Mirela Ghițescu, Doina Hăvârneanu, Iulia Roman, Felicia Grădinariu, R. Dănulescu, Violeta Borza, Sofia Constantiniu

Institute of Public Health Iasi, Romania

Aim: Evaluation of occupational risk factors and of businesses attitude towards implementation of workplace safety and health promotion measures in small and medium enterprises (SMEs). **Material and method:** The risk assessment was performed by 449 determination of pollutants concentrations in the workplace air (solvents, acids, ammonia, formaldehyde, naphthalene, carbon and nitrogen oxide, aliphatic and aromatic hydrocarbons, total and respirable particulate matter, heavy metals, airborne microflora), 127 noise measurements, 1348 biological exposure/effect tests and 96 microclimate evaluations in 27 SMEs and 17 workshops of cultural institutions. The possible adverse effects in the health status was evidenced through the investigation of 687 employees from different activity fields by clinical and paraclinical examinations, functional explorations and audiometry. The results

Abstracts

were interpreted in comparison of those of 266 controls and statistically analyzed through usual methods (Students't test, χ^2 -test). **Results:** The ambient monitoring revealed the presence of an increased occupational risk in the most of the SMEs: from 163 investigated workplaces, only in 64 the admitted exposure limits were not exceeded, in 73 there was exceeded one pollutant, in 22 by twos and in 4 workplaces by threes toxicants were situated above the threshold limit values. The results obtained in biomarker measurements exceeded the biological tolerable limit in a statistically significant higher rate in the exposed personnel compared to the control group (33.1% versus 9.0 %, $p < 0.05$). The unfavorable impact of the occupational risk factors in the health status was evident: only 30.8 % of the exposed were apparently healthy subjects in comparison with 53.1 % in controls. This state of occupational safety and health in SMEs could be caused by the lack of awareness about the causes and results of occupational hazards, the lack of knowledge about ways to eliminate occupational hazards, the relatively small number of employees and the personnel mobility that makes the monitoring for occupational health and security more difficult, the lack of possibilities (including financial ones) to apply measures for preventing occupational hazards. **Conclusions:** Whilst there is an increasing recognition of the importance of the role of (SMEs) in the development of the economy, their occupational safety and health conditions continue to give rise for concern. Only a few owners of small businesses are convinced of the potential benefits of investing in health and safety at work. A safe working environment is not only essential for the well-being of employees, but also for ensuring that enterprises are successful and sustainable, and that economies thrive in the long term. To attain this objective, companies must be offered help and support in setting up occupational safety and medical protection measures on their own initiative and under their own responsibility.

Correspondence:

Dr. ing. Brigitte Scutaru

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iași

Str. V. Babes nr. 14

700465 Iași, România

E-mail: bscutaru@yahoo.com

THE DEVELOPMENT OF LOW BACK PAIN AMONG WORKERS IN A MEDIUM-SIZED CIVILIAN BUILDING YARD

Micaela Mărgineanu, Mădălina Bohosievici

Institute of Public Health Iași, Romania

Objective. Construction is consistently ranked among the most dangerous industries and accounts for a large percentage of occupational illnesses and injuries. The aim of this study was to analyze the musculoskeletal disorders with their different clinic aspects that can appear among construction workers. **Subjects and methods.** A cross-sectional study was performed in a medium-sized construction enterprise. The exposed lot: 80 subjects (mean age 39,5 years, $SD=6,7$, mean length of service 20,1 years, $SD=6,25$) was comparable with control. Exposure data included information on occupational, psychosocial, and physical workloads. The investigations concerned the general health status, clinical and X-ray diagnoses of musculoskeletal disorders. **Results and conclusions.** Workplace risk factors include frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; repetitive, forceful, or

Abstracts

prolonged exertions in a fixed or awkward work posture; vibration, and varied temperatures. About 75% of the investigated workers revealed musculoskeletal disorders with different clinic aspects: Low Back Pain (LBP), sciatica, tendinitis, epicondylitis, synovitis; the prevalence of this symptoms was higher among exposed subjects ($p=0,005$). Of these back injuries, 60% are due to overexert, and 96% are back pain. LBP was significantly associated with extreme work postures. Lifetime incidence rates was varied by occupation, with ranges from 61%–83% in younger age groups and 53%–75% in older groups. X-ray exam has found that those with jobs involving heavy physical work had increased risk of disc pathology comparatively to the control group. Occupational exposure to heavy physical work in a medium-sized civilian building yard seems to be able to induce a state of musculoskeletal disorders; among this 96% are classified as LBP.

Correspondence:

Dr. Micaela Mărgineanu

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: mikamarg@yahoo.com

ELECTRO NEURO MYOGRAPHIC CHANGES RELATED WITH RISK FACTORS ON WORKERS AT MUSEUM COMPLEX FROM IASSY

Mădălina Bohosievici, Violeta Borza, Brigitte Scutaru, Eugenia Dănulescu, V. Cazuc, Felicia Grădinariu

Institute of Public Health Iasi, Romania

Aim The purpose of the work is to evidence through electroneuromyography (ENMG) the modifications at the level of the peripheral nervous system appeared in a group of museum restoration employees occupationally exposed to a multiple noxious chemicals (organic solvents, acids, bases, adhesives, whitening agents, dyes colouring substances, insect-fungicides, resins, metallic oxides etc.). **Material and method** The investigated group consisted of 36 employees of an important museum complex from Iasi. The mean age of the employees was $44\pm 10, 8$ years and the mean exposure period was $13, 22\pm 8, 83$ years. We also investigated a control –matched group. We applied the method of electroneuromyography of stimulodetection with surface electrodes.

The main investigated enmg parameters:

- excitability thresholds (distal and proximal)
- delays of appearance of M motor reaction
- delays of appearance of H reflex reaction
- speed of motor conduction
- Hoffman index (H)
- speed of sensitive conduction

The achieved data enabled us to establish an ENMG diagnosis and they were interpreted in connection with the environmental measurements. **Results and discussions:** The above mentioned substances used in the process of restoration are recognized as neural-toxics. Under these circumstances, the interpretation of the values of the investigated ENMG parameters allowed the establishment of a functional diagnosis:

Abstracts

- normal values of the above mentioned parameters were registered for 12 persons (33, 3%)
- 16 cases (44, 5%) showed different degrees of polyneuropathic changes
- 8 cases (22, 2%) had slight ENMG alterations: sensitive alteration in 13, 33%, motor alteration in 20%, sensitive-motor in 66, 6% cases. We obtained statistically significant changes compared to control group.

Conclusions: 1. The chronic occupational multiple exposure of chemical noxes with neurotoxic action may induce the idea of a professional etiology. 2. The long duration of exposure could explain the increased percentage of mixed forms of polyneuropathy. In time, the action of noxes has spread from the sensitive fibers initially affected to the motor ones.

Correspondence:

Dr. Mădălina Bohosievici

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: madalinabohosievici@yahoo.com

INFECTIOUS DISEASES IN OCCUPATIONAL MEDICINE

Chairpersons:

Dr. med. Gertrud Kirchhoff

Dr. Carmen Croitoru, senior researcher

AVIAN INFLUENZA – A POTENTIAL NEW THREAD FOR OCCUPATIONAL AND ENVIRONMENTAL MEDICINE

D. A. Groneberg

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin and Department of Respiratory Medicine, Hannover Medical School, Germany

Avian influenza is an animal disease caused by infection of poultry with influenza viruses. This viral infectious disease occurs globally. All bird species are susceptible to infection. Avian influenza virus strains are classified as low pathogenetic or high pathogenetic. Some low-pathogenic strains such as the H5 and H7 subtypes have the potential to mutate and become highly pathogenic. Although avian influenza A viruses rarely infect humans, some instances of human infection have occurred and some of them have resulted in death. Transmission to humans most commonly occurs in an occupational setting and therefore, avian influenza poses a thread on occupational health. The routes of viral entry to humans are the mouth, nose, eyes, and lungs. In the event of a new epidemic, a large group of potential patients is also represented by healthcare workers ranging from medical students and laboratory technicians to nurses and physicians. In a situation of potential new epidemics, physicians and healthcare officials need to be aware of diagnosis, treatment and prevention of avian influenza.

Correspondence:

Prof. Dr. med. David Groneberg

Charité Universitätsmedizin Berlin

Abstracts

Freie Universität Berlin & Humboldt-Universität zu Berlin
Institut für Arbeitsmedizin Berlin
Ostpreussendamm Nr. 111
12207 Berlin, Germany
E-mail: David.Groneberg@charite.de

STRENGTHENING EXPERT FORECAST ON EMERGING BIOLOGICAL RISKS RELATED TO OCCUPATIONAL HEALTH AND SAFETY

Liliana Răpaș

Authority of Public Health, I.N.C.D.M.I."Cantacuzino", Bucharest, Romania

At the international level there are European regulations on the protection against risks related to the exposure to biological hazards at the workplace, as it follows:

- Directive 2005/54/EEC on the protection of workers from risks related to exposure to biological hazards at work for the safety and health of workers at work.

At the international level, by questionnaires addressed to Member States, priority researches on risk assessment and expertise' were identified as early as 1993, for example, in Austria, Denmark, Germany, Finland, Great Britain, Italy, Holland, Greece, Ireland, Spain, Portugal, France and focused upon the risk related to biological hazards – viruses – in Denmark and Great Britain.

There are two **case definition** used at national and international level:

1. risk assessment
2. occupational disease

1. The concept of risk assessment supposes a larger and more complex approach. Not only the assessment of known risk included in a closed list (e.g. 161 pathogenic bacteria for the human being and 28 classes of viruses, 69 parasites and 27 fungi) is taken into consideration but also the interaction between various risk factors. For example, single or cumulated exposure to biological hazards of 1, 2, 3 or 4 groups, has different effects in accordance with the species pathogenesis, hazard specificity to determine infection, allergy or intoxication, cumulated effect of environment-temperature factors, level of training and information, continuously changing necessities of employees, safety level of laboratories, implemented insulating level.

2. There are WHO and ILO recommendations in this respect.

So, WHO recommends the use of the following classification as scientific basis for the research of occupational causes of parasitic and infectious diseases and risk expertise:

A 1.1. Intestinal and bacterial infections (A00-A69)/ A 1.2. Infections with Chlamydia and Ricketts (A 70-A 79)/ A 1.3. Viral infections (A 80-B 34) / A 1.4. Mycosis (B 35-B 49) / A 1.5. Diseases caused by protozoan and parasites (B 50-B 89).

ILO, taking into consideration the votes of more than 130 countries represented at experts level in December 2005 extended the list of occupational diseases that shall be **studied for workers exposed to biological hazards**, by modifying the Recommendation no. 194/2002.

The following diseases shall be studied by **monitoring the exposure to biological hazards** in the work environment and by clinic, microbiologic and/or serologic diagnosis: 1. brucellosis / 2. B and C viral hepatitis / 3. AIDS (HIV contamination at the workplace) / 4. Tetanus / 5. Tuberculosis / 6. Infectious and parasitic diseases determined by other biological hazards that are not mentioned above and for which the clinic and laboratory research sets a relationship between the exposure to biological hazards at the workplace and the worker's disease.

Abstracts

Regarding the scope of the connection to the priorities and European strategy regarding the health of the active people, employed in places of work with exposure to biologic agents, by efficient and balanced implementation of three regulations, Directive 54/2000/EEC, Recommendation no. 194/2002 of I.L.O., amended and enhanced in the field of biologics in December 2005 and of the classification and coding of O.M.S. ailments there was proposed a project CEEX/M1. The overall objective is an increase in the efficiency of providing health to active people, employed in activities with evidenced exposure to biologic agents identified at work places in Romania. The aforementioned objective is part of the national prevention and health ensuring policy by a selective, non-invasive or minimally invasive detection, to monitor people incurring biological (source or receptor) and proficient diagnosis with etiological monitoring by the genetic study of micro-organisms, included in the European list, 161 pathogen bacteria species to man and 28 classes of viruses, 69 species of parasites and 27 species of fungi, triggering catching diseases as well as parasitic. The results will be translated in practice through creating an inter-institutional logistic platform, at the level of the consortium in the beginning and at a national level later on. The collaborative architecture will be conceived both as part of the integrated system for health, security, environment, quality to be implemented at a beneficiary in a field with biological risk, as well as in the bi-univocal relation doctor-patient where the validation of the expertise method gives risk segregation and efficiency of the preventive strategies. The network of chartered laboratories for microbiological and serologic diagnosis is a technological infrastructure of the validation of the risk prospective expertise method, which, in the first place, will concentrate in the national observation and information centre regarding the risk in relation to bio-security in a modern health system compatible to health systems in the Member States.

Correspondence:

Dr. Liliana Râpaş

Medic primar

Autoritatea de Sănătate Publică Bucureşti

Str. Avrig nr. 72 - 74

021578 Bucureşti, Romania

E-mail: liliana@medmun.ro

TUBERCULOSIS IN OCCUPATIONALLY-EXPOSED HEALTHCARE WORKERS IN MOLDAVIA REGION

Carmen Croitoru¹, Doina Popa¹, C. Botezatu², Carmen Bîclea², Crenguţa Roşca³, Elena Vrabie⁴, Doina Ivanovici⁵, Rodica Ţugulea⁶, Georgeta Budacea⁷

1. Institute of Public Health Iaşi, Romania

2.3.4.5.6.7. Authorities of Public Health Bacău, Botoşani, Galaţi, Iaşi, Suceava, Vaslui, Romania

Background: Romania is the first European country regarding tuberculosis (TB) incidence in 2004, with 134.6 cases/100,000 inhabitants. Medical staff, especially in Pneumology Services represents a high risk group for occupational induced TB. Yearly, 1 out of 200 employees in these services is diagnosed with TB all over Romania. **Aim:** to achieve a 6-yrs survey concerning the occupationally-induced TB registered as Occupational Diseases (OD) in the 8 counties of Moldavia Region (NE Romania). **Material and methods:** data regarding OD registered in 2000-2005 by Occupational Medicine Departments in Public Health Directorates were used. **Results:** biological-induced OD were the 3rd frequent OD in the last 2 yrs. TB was

Abstracts

the first work related infectious disease in health care workers. There were reported 44 TB cases during these yrs. Their percentage from OD varied between 1-7% each year. Vaslui county registered the greatest percentage -27%, with yearly variations between 0% and 75%. 1 out of 5 cases were women, 59% nurses and 16% physicians. There were 4 cases of medical staff from other departments than Pneumology (X-Ray Services). The most susceptible age was 25-29 yrs and service length 5-9 yrs. 80% were Pulmonary TB, 20% were extrapulmonary TB (pleuritis and ganglion TB). **Conclusions:** 1. Biological-induced OD became more frequent. 2. Occupational induced TB in health care workers was the most frequent among them. 3. These epidemiological data prove that occupational health services for hospitals are needed. 4. For medical staff at high risk for TB and other biological induced diseases preventive medical checkups as well as hygiene measures with contaminated materials are mandatory.

Correspondence:

Dr. Carmen Croitoru

Medic primar, cercetător științific principal gr. III

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: clilianacarmen@yahoo.com

ASPECTS OF CELLULAR AND HUMORAL IMMUNITY IN MEDICAL EMPLOYEES

OCCUPATIONALLY EXPOSED TO *MYCOBACTERIUM TUBERCULOSIS*

Daniela Constantinescu¹, Carmen Cozmei¹, Carmen Croitoru¹, Mirela Ghitescu¹, Doina Popa¹, E. Carasevici²

1. Institute of Public Health, Iasi, Romania

2. University of Medicine and Pharmacy "Gr. T. Popa", Department of Immunology, Iasi, Romania

Susceptibility to tuberculosis is largely unknown, but depends on both host and bacterial factors. Protective immunity in tuberculosis depends mainly on CD4⁺ T cells that secrete effector molecules such as IFN- γ and TNF- α , which can activate macrophages to limit the proliferation of tubercle bacilli. It was concluded that people with frequent occupational exposure to *M tuberculosis* have larger numbers of circulating T cells reactive with mycobacterial antigens. The **aim** of our study was to investigate the impact of occupational exposure to *Mycobacterium tuberculosis* on cellular and humoral immunity, in order to detect a marker that would seize the transition to disease. Thus we determined by flow-cytometry the ratios of circulating lymphocyte subtypes and by immune diffusion and chemiluminescence we quantified serum immunoglobulins in 19 employees with heavy occupational exposure to tuberculosis. The **results** were compared to a control group consisting of 19 healthy medical employees with no occupational exposure to *M tuberculosis*. Although we could not confirm an increase of the circulating T helper population or of the total T cells, we found less circulating B cells and an increase of total serum IgE in the exposed group compared to controls. We suggest that a study of *M tuberculosis* - specific T cells is a more appropriate approach and that an enlargement of the occupationally exposed group might help drawing relevant **conclusions**.

Abstracts

Correspondence:

Dr. Daniela Constantinescu

Medic specialist

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: dconstantinescu_ro@yahoo.com

TH1/TH2 RESPONSES IN HEALTH CARE WORKERS OCCUPATIONALLY EXPOSED TO *MYCOBACTERIUM TUBERCULOSIS*

Carmen Cozmei¹, Daniela Constantinescu¹, Carmen Croitoru¹, Mirela Ghitescu¹, Doina Popa¹, E. Carasevici²

1. Institute of Public Health, Iasi, Romania

2. University of Medicine and Pharmacy “Gr. T. Popa”, Department of Immunology, Iasi, Romania

Health care workers are at high risk of exposure to *Mycobacterium tuberculosis*, an acid-fast intracellular pathogen that elicits strong acquired cellular immunity in most infected individuals. It is widely accepted that the induction of Th1 lymphocytes is essential for anti-tuberculosis immunity. Elevated expression of interleukin-4 in health care workers exposed to *M. tuberculosis* was correlated with a higher risk ran by these individuals of subsequently developing the disease. In this study, we evaluated the *in vitro* lymphocyte specific proliferation in response to PPD stimulation in health care workers exposed to *M. tuberculosis*, TB patients and healthy controls using the flow cytometry method based on CFSE. These specific antigen-activated T lymphocytes were further evaluated for cytokine production (IFN γ and IL-4) aiming to find an immune parameter that could detect the evolution to acute tuberculosis. Our results showed that IFN γ /IL-4 ratio was tilted in favor of IL-4 in PPD-activated CD3⁺ cells from exposed persons and healthy controls. These data, together with the fact that all subjects observation did not develop active disease during the two-year study time interval, suggest a possible interpretation of IL-4 as having a protective role rather than a clearly defined pathogenic one. These findings stress the need for further immunoepidemiological studies regarding the population at high risk to develop tuberculosis disease.

Correspondence:

Dr. Carmen Cozmei

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: cozmeic@hotmail.com

Abstracts

NOISE RELATED HEALTH RISK – DATA AND CONSEQUENCES

Chairpersons:

Priv. Doz. Dr. med. Rainer Kirchhoff

Dr. Răsvan Dănulescu, senior researcher

HOW TO AVOID THE PROGRESS OF NOISE INDUCED HEARING LOSS - A NEW PROGRAMME SET UP BY THE STATUTORY ACCIDENT INSURANCE

Elke Brinkmann, H. Schmischke

NMBG (statutory accident insurance), Hannover, Germany

The lecture starts with the pathogenesis of the most frequent recognised occupational diseases (2004: 6424 cases).

The new Noise Protection Directive 2003/10/EC is presented as it shall be implemented into national law before long. It specifies a lower exposure action level of 80 dB(A) at which measures have to be initiated, e.g. duty to supply information and training, availability of hearing protectors, entitlement of workers to preventive audiometric testing. When the upper exposure action limit of 85 dB(A) is reached, there is a duty to mark noise areas with appropriate signs and to use individual hearing protectors. In addition, noise reduction programmes shall be carried out. Another new item is an exposure limit value of 87 dB(A). The interaction between noise and ototoxic substances and vibration shall be taken into account. In the following, the hierarchy of measures at noisy workplaces and personal hearing protectors are treated. The course of noise induced hearing loss and possible prevention measures are introduced. As the Berufsgenossenschaften are requested to counteract occupational diseases by all suitable means, the health seminary "Noise protection at work" of the Norddeutsche Metall Berufsgenossenschaft is presented. Its purpose is to maintain the hearing ability and the quality of life and to advise on personal protection against further damages caused by noise. The major aspect is information on the cause of the disease, but as well exchange of experiences of persons suffering from a recognized occupational disease caused by noise, which is, however, still not compensable.

Correspondence:

Dr. med. Elke Brinkmann

Norddeutsche Metallberufsgenossenschaft

Seligmannallee Nr. 4

30173 Hannover, Germany

E-mail: elke.brinkman@nmbg.de

OCCUPATIONAL NOISE EFFECT IN AN INDUSTRIAL FACTORY OF TIMIS COUNTY

Elena-Ana Păuncu, C. Klemens, Diana Klemens, Laura Jebereanu, S. Păuncu, S. Jebereanu, Florina Gherman, Delia Cheptănariu, Hanna Madia

University of Medicine and Pharmacy "Victor Babeş" Timișoara, Romania

We performed noise measurements in the „Z” section of a big industrial enterprise. The studied population was formed by 504 workers; a noise exposed group of 204 persons exposed at more than 87 dB(A) and a control group of 300 non-exposed persons. We applied a questionnaire, complete clinical examination, otho-rhino-larinx exam and audiogram. The

Abstracts

seniority at work, with professional noise exposure was 7.3 years. The most frequent diagnosis was obesity, hipoacusia and arterial hypertension. The professional noise has a positive influence in appearance and evolution of hypertension when there is an association with a ischaemic cardiophaty or familial antecedents of hypertension. Hearing damages have an occupational determination, more than half of workers refuse to use the hearing protectors in noise exposed activities.

Correspondence:

Şef lucrări dr. Elena Ana Păuncu

Medic primar

Universitatea de Medicina și Farmacie Timișoara

Str. Uta Ioan Colonel martir nr. 2

300041 Timișoara, Romania

E-mail: epauncu@yahoo.com

SPECIALS

Chairpersons:

Dr. Liliana Râpaș

Dr. Irina Popescu

WORKING CLIMATE

G. Schäcke, C. Scutaru

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

Working atmosphere is an important factor in all kind of industries or administrative corporations. We evaluated 293 of 500 questionnaires concerning

- general questions,
- collegiality,
- senior employee,
- organisation,
- information and co-determination,
- representation of interests / works committee,
- operation efficiency

in 86 hypotheses. 207 employees did not answer.

The marking for each hypothesis allowed a scaling from 1 – 5:

- 1: Full agreement,
- 2: Extensive agreement,
- 3: Part agreement,
- 4: Part disagreement,
- 5: Extensive disagreement,
- 6: Full disagreement.

We calculated mean value, standard deviation, median value, variance, and skewness. Unclear and missing answers were shown separately. The different topics are discussed under different aspects in the working atmosphere.

Correspondence:

Abstracts

Prof. em. Dr. med. Gustav Schäcke

Charité Universitätsmedizin Berlin
Freie Universität Berlin & Humboldt-Universität zu Berlin
Institut für Arbeitsmedizin Berlin
Ostpreussendamm Nr. 111
12207 Berlin, Germany
E-mail: gustav.schaecke.berlin.arbmed@t-online.de

COMPUTER QUESTIONNAIRE SYSTEM FOR HEALTH RISKS ASSESSMENT OF HOME CARE STAFF

C. Scutaru, G. Schäcke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

Introduction: In the last years in Germany, house care systems showed an important increase. This development is combined with a series of questions involving the infection risk to that kind of staff. In order to assess those risks, we conducted a study involving a questionnaire about their current workplace situation. **Method:** The questionnaire we prepared was pretty elaborate, containing over 120 questions. However more than half of the questions are logically linked to another in a so-called parent-child relationship. These means, that sometimes it is not necessary to ask some questions because they are not relevant to that person. So, in order to reduce time and input errors, we decided to have the whole questioning process taking place in front of the computer. The questions in the questionnaire were sorted by type, and so we had five types of questions: text, single and multiple choice, date and number. Secondly we had to define the relationship between the questions which should be linked together. In this case each question carried a “flag” which marked if the question was linked or not. If it was linked than two secondary properties defined the parent and the condition that has to be fulfilled in order to show the question. By these means the software can decide, at each question, if it is necessary to show it or not, based on previously given answers. An important role in creation of the questionnaire was dedicated to the data coding, in regard to the statistical analysis. After the questioning a second software program was used to decode the data and export it to Microsoft Excel for further analysis. **Results:** With this tool we questioned 27 employees working in the house care. The used questionnaire allows to gather the data very accurately and also to minimize the time by using the nested questions. The results can be visualised immediately after the questioning, so no further time is needed for data preparing. **Conclusions:** With this method it is very easy to gather data with complex questionnaires, as the process is time optimised. The process is so conceived that it does not allow questions to be skipped, which is a problem with regular paper questionnaires. The questionnaire content can be easily maintained.

Correspondence:

Dipl. Ing. Cristian Scutaru

Charité Universitätsmedizin Berlin
Freie Universität Berlin & Humboldt-Universität zu Berlin
Institut für Arbeitsmedizin Berlin
Ostpreussendamm Nr. 111
12207 Berlin, Germany

Abstracts

E-mail: scuty@gmx.de

ASSESSMENT OF OXIDATIVE STATUS IN BIOLOGICAL FLUIDS OF ELECTROPLATING WORKERS

Felicia Grădinariu¹, Irina Popescu¹, Brigitte Scutaru¹, O. Petriș²

1. Institute of Public Health Iași, Romania

2. University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania

Aim: Because the pathophysiological mechanism of toxic injuries induced by Cd, Cr and Ni lies on lipidperoxidative processes, we assessed the oxidative status of bronchoalveolar lavage fluid (BALF) and serum in workers from a metal covering plant, trying to analyze the connection between these markers and occupational-induced upper respiratory tract pathology. **Material and Methods:** 28 workers from a plating unit having average age 40.4 ± 6.0 years and service length of 15.5 ± 5.1 years were investigated by clinical, biochemical, immunological exams and pulmonary functional tests. Their results were compared to those of a matched-control group. Fibrobronchoscopy was performed in 9 subjects. **Results:** Although workplace air metal salts ranged under MAC, cumulative toxic index was 1.38, as a measure of the intensity of occupational risk. Clinical examination revealed 60.9% cases of emphysema and 43.5% cases of upper respiratory tract diseases in exposed. 78.3% of them excreted abnormal high rates of beta2-microglobulins, as sign of renal metal-induced damage. Blood SOD activity was significantly higher in exposed vs. controls ($t=2.85$, $p<0.01$) and correlated with serum Ig E in exposed ($r=0.58$, $p<0.01$). The inhibition of BALF SOD activity varied inversely with the rise of blood erythrocytes SOD ($r=-0.67$, $p<0.05$, $n=9$) revealing a connection between the impairment of antioxidant defense in both fluids. The decrease of blood total glutathione correlated with BALF SOD inhibition ($r=0.75$, $p<0.05$), showing the link between blood and lung detoxifying capacity. It also associated negatively ($r=-0.63$) with the gravity scores for respiratory diseases in this subgroup. The imbalance of this protective mediator is able to enhance the susceptibility to lung inflammation and to consequent injuries. **Conclusions:** Simultaneous blood and BALF assays can quantify the deleterious health effects of heavy metals occupational exposure. Further studies are needed to identify the most adequate markers to reflect lung injuries and the possible transformation to oncogenic processes.

Correspondence:

Dr. chim. Felicia Grădinariu

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iași

Str. V. Babes nr. 14

700465 Iași, România

E-mail: feligradin@yahoo.com

PRELIMINARY RESULTS CONCERNING OCCUPATIONAL STRESS EVALUATION AT MAGISTRACY FIELD WORKERS BY MEANS OF FATIGUE QUESTIONNAIRE CIS20 (CHECKLIST INDIVIDUAL STRENGTH 20 ITEMS) AND LABORATORY DATA

Cristina Cordoneanu, Mădălina Bohosievici, Mirela Ghițescu, Felicia Grădinariu, Irina

Alexandrescu, Valeria Hurduc

Institute of Public Health Iași, Romania

Abstracts

Aims. We try to reveal stress aspects in two groups of magistracy employees, by means of CIS20R and hematological and biochemical data. **Material and methods.** 73 (46 female) magistracy employees were investigated. Averaged values of the investigated group were for age: 41.8 ± 9 years; for total work length: 19.8 ± 9.7 years; for actual work length: 12.2 ± 7 years. Group A: 31 prosecutors (16 females), average age: 40.7 ± 9.3 years; total work length: 17.5 ± 9.7 years; actual work length: 12.7 ± 6.7 years. Group B 41 registrars: (30 females), average age: 42.57 ± 8.76 years; total work length: 21.47 ± 9.4 years; actual work length: 11.83 ± 7.3 years. CIS20R with 20 items self reported questionnaire that refers to fatigue experienced during the previous two weeks has been administered. It consists of four dimensions: the subjective experience of fatigue and reduction in motivation, reduction in activity and reduction in concentration. By adding the four dimensions a CIS total score can be calculated. Higher scores indicate a higher degree of fatigue, more concentration problems, reduced motivation and less activity. Laboratory data concerning hematological, biochemical, oxidative stress were performed also. **Results.** CIS20R results are presented in Table 1.

	Subjective feeling of fatigue	Concentration	Motivation	Physical activity	General Score
Group A	20.48	9.03	8	5.03	42.55
Group B	25.50	11.79	8.74	5.90	51.93
Ideal	8	5	4	3	20

Laboratory data. Cases with pathologic values (%) concerning laboratory data (Table 2)

%	Hemo globin	Hemato crit	Erythrocyte sedimentation rate	Serum Immunoglobulin			Red blood cell superoxide dismutase	Serum lipoperoxides	Blood glucose	γ GT	Serum total cholesterol
				IgG	IgA	IgM					
Total	57.53%	54.79%	54.79%	20.55%	4.11%	10.96%	15%	58.33%	13.70%	8.22%	6.85%
Group A	19.18	21.92	24.66	10.96	2.74	4.11	8.33	25	6.85	1.37	2.74
Group B	38.36	32.87	30.14	9.59	1.37	6.85	6.67	33.33	6.85	6.85	4.11

All investigated subjects are more or less fatigued vs. ideal. The Group B scores are higher than group A values. Laboratory data registered pathological values more important at Group B also. The highest fatigability scores are related with pathological laboratory data. **Conclusions.** In magistracy occupational stress reaches both prosecutors and registrars, the last ones even more; assumption sustained both by CIS20R and laboratory data.

Correspondence:

Dr. Cristina Cordoneanu

Medic primar, cercetător științific principal gr. III

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

Abstracts

E-mail: cristina_cordoneanu@yahoo.com

WORKPLACE CHARACTERIZATION IN OCCUPATIONAL EXPOSURE TO ELECTROMAGNETIC FIELDS

Dana Dabala

Public Health Agency - Ministry of Transports, Constructions and Tourism, Department of Occupational Medicine, Cluj-Napoca, Romania

Everyone in our modern society is now exposed to a complex mixture of electromagnetic fields (EMFs) in the range 0 - 300 GHz. EMF has become one of the most pervasive environmental influences, and the possible health effects are in continuous research; exposure levels at many frequencies are increasing significantly as the technological revolution continues unabated and new applications using different parts of the spectrum are found. For a better study of the biological effects of EMF s on men health we must know well all the EMF man- made sources of exposure. The present article propose a classification of occupational EMF sources according with frequencies; first, we describe the static EMFs sources of exposure (ex. electrolytic processes ,nuclear magnetic imaging, particle accelerators etc.); then, we relate about the low frequency EMF s (ELF) sources like telephony, power lines, magneto-therapy, metal detection etc; we report on radio-frequency and microwave fields (RF) sources (induction heating, RF welding, RTV transmissions, diathermia, nuclear magnetic resonance etc.); we present the international exposure limits to EMFs, operative in present; then we describe our results - measurements in some types of EMFs occupational sources . The international organisms takes seriously the concerns raised about possible health effects from exposure to EMFs as they design the necessary directions and objectives in research, function of electromagnetic field type (static, ELF or RF), to assess the health risk and identify any environmental effect of EMF exposure.

Correspondence:

Dr. Dana Dăbală

Medic primar

Ministerul Transporturilor, Construcțiilor și Turismului, Agenția de Sănătate Publică Cluj-Napoca

Str. Câmpeni nr. 3

400200 ClujNapoca, Romania

E-mail: danadabala@yahoo.com

THE PSYCHO-SOCIAL REINTEGRATION OF THE PATIENTS WHO HAD THEIR LOWER LIMBS AMPUTATED

E. Vancu

University "Aurel Vlaicu", Arad, Romania

I have surveyed for 5 years the socio-professional behaviour of physically impaired persons who accepted re-integration in the labour market. For most of them, this meant change of profession and of employment. I insisted on their somatic state, as well as on the psychological factors they developed. I also surveyed ergonomic factors aimed at ensuring the

Abstracts

best work environment. The employers, mostly from the textile field, co-operated correctly, giving evidence of remarkable human solidarity.

Correspondence:

Lector univ. Dr. Emil Vancu

Medic primar

Universitatea "Aurel Vlaicu" Arad

Facultatea de Științe Umaniste și Sociale

Str. Elena Drăgoi nr. 2

310330 Arad, Romania

E-mail: mmvancu@yahoo.com

IS X-RAY PULMONARY SCREENING A RADIATION RISK FOR MEDICAL STAFF?

Irina Popescu, Iulia Roman, Olga Iacob

Institute of Public Health Iasi, Romania

Aim: health status assessment of medical staff from pulmonary radiology units knowing that Romania has one of the highest incidences of tuberculosis (TB) - 146.0 cases/10⁵ inhabitants a year and still uses very old X-ray facilities in mass pulmonary screening (RMF).

Material/methods: 34 medical subjects (64.7% F, 14.4±8.9 years mean exposure length to ionizing radiation, 38.2% smokers) involved in pulmonary X-ray screening were investigated in a follow-up of three years by physical examination, hematological complete test, cytogenetic exam in first year (micronuclei-MN-in blood peripheral lymphocytes cultures / chromosome when necessary) and individual dosimetry. **Results:** Clinical exam revealed 5.9% occupational allergic dermatitis and 29.4% papillose skin lesions correlated with exposure length. Also 8.8% subjects had occupational TB history. Although personnel dosimeters recorded under detectable levels (170μSv/mo) cytogenetic investigation showed 11.7% subjects with numerical MN disorders and in addition 2.9% with structural disorders, both significantly correlated with workload. As hematological effects – as the lymphocytes answer as the most radiosensitive peripheral blood cells even to low doses of ionizing radiation - 47.05% subjects had lymphocytosis positively correlated with both workload and high MN level in 12.5% cases. **Conclusions:** In Romania, X-ray pulmonary screening for high incidence of TB cases can be a health problem for medical staff. Workload in ionizing radiation exposure using old radiology procedures causes cytogenetic and hematological impairments with potentially carcinogenic risk. Occupational medicine surveillance involves technical (replacement of old apparatus and RMF procedures, dosimetry, radiation protection and quality assurance programs) and medical measures (biological dosimetry). All data are recording for the first regional register of radio-induced cancer.

Correspondence:

Dr. Irina Anca Popescu

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: iapopescu@yahoo.com

POSTER SESSION

Moderators:

Prof. Dr. med. Gustav Schäcke

Prof. Dr. rer. nat. Alwin Luttmann

***SMALL AND MEDIUM-SIZED ENTERPRISES – OCCUPATIONAL RISK
MANAGEMENT***

**HOW MUCH DO WE KNOW ABOUT THE POSSIBLE RISKS IN SMALL AND
MEDIUM COMPANIES?**

**Brândușa Constantin¹, Cornelia Mihalache¹, Doina Ivanovici², Corina Papaghiuc¹, E.
Carja¹**

1. University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania

2. Authorities of Public Health, Department of Occupational Medicine, Iasi, Romania

The study was conceived in the didactic manner of presentation (general essay and observations from territory) regarding the possible risks in small and medium companies. There were correlated the data from the workplaces and professions that are frequently exposed to occupational noxa. The authors' pertinent wish was to inform the future occupational health physicians, especially the colleagues from other specialities, about the tackled problems because otherwise we can not apply prevention strategies in a little known field (exposure, morbidity).

Correspondence:

Conf. Dr. Brândușa Constantin

Medic primar

Universitatea de Medicină și Farmacie Iași

Str. Universității nr. 16

700115 Iași, Romania

E-mail: branduzia20@yahoo.com

URINARY CATECHOLAMINE LEVEL IN CERAMIC INDUSTRY WORKERS

**Felicia Grădinaru¹, Brigitte Scutaru¹, Carmen Croitoru¹, G. Bălăceanu¹, Răzvana
Dănulescu²**

1. Institute of Public Health Iasi, Romania

2. University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania

Aim: In a cross-sectional survey upon a group of workers from a ceramic bricks manufacture we tried to determine some markers of work stress and to find their connection to work conditions and health status. **Material and Methods:** 81 workers (9 % women), with average age of 38.35±9.5 years and length of service in ceramic factory of 16.37±9.9 years were investigated by a complex protocol, including clinical, biochemical and hematological investigations, EKG, pulmonary functional tests and audiometry. Urinary catecholamines were determined by ELISA technique at the end of work shift in 43 workers. Statistical

Abstracts

analysis was made using Students' t test and χ^2 -test. **Results:** 14 of the 43 investigated workers (33%) had normal adrenaline and noradrenalin level, other 18 subjects (42%) excreted high adrenaline level with normal range noradrenalin and the quarter of them (25%) had abnormal high level of both urinary catecholamines. The prevalence of digestive, cardiovascular and respiratory affections in this last subgroup was significantly higher than in the first one ($\chi^2=4.73$, $p<0.05$), these affections being associated with musculoskeletal ones. In spite of the similar age, total service length and time of exposure in ceramic industry, the factors which could differentiate the two subgroups with opposite catecholamine level could be also those related to individual response to work stress. The capacity of fulfilling rapidly the tasks, the adaptability to supplementary tasks, but also the diminution of concentration capacity are associated with high urinary catecholamine excretion. **Conclusions:** Urinary catecholamine level illustrated the complex organism's response to work conditions and work stress. Their abnormal high values associated with some affections in which psychological pattern could be an important determinant and with the personnel effort to cope with professional tasks.

Correspondence:

Dr. chim. Felicia Grădinariu

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: feligradin@yahoo.com

THE IMPACT OF OCCUPATIONAL RISK FACTORS IN THE HEALTH STATUS OF PATRIMONY OBJECTS CONSERVATORS

Valeria Hurdac, Brigitte Scutaru, V. Cazuc, A. Maftai, Eugenia Dănulescu, Carmen Croitoru

Institute of Public Health Iasi, Romania

Aim: The objective of this study was to determine biochemical alterations of liver function among conservators of patrimony objects associated with cumulative exposure to chemical agents. **Material and method:** A multidisciplinary cross-sectional study was carried out in 49 conservators (mean age: 40.2 ± 8.6 years), with long-term exposure (mean length of work: 12.3 ± 8.3 years), from different laboratories of a museum complex (restoration of ceramic and metal objects, paintings, wood, paper, ancient textiles) and of a religious institution (conservation and restoration of paintings, icons and other objects of the Christian creed) and in 65 matched control subjects. By means of air monitoring the toxicants (ammonia, toluene, xylene, formaldehyde, acetone, heavy metals) concentration in the ambient air were determined using a Draeger detector tube system and a Casella sampling kit. To assess the body load at the time of examination, biological monitoring in urine post-shift spot samples (acetone, hippuric and methylhippuric acid, lead, total phenols, sulphate index) was performed. Serum concentrations of aspartate aminotransferase (ASAT), alanine aminotransferase (ALAT), alkaline phosphatase (ALP), gamma-glutamyl transpeptidase (GGT) and serum protein electrophoresis were determined by commercial kits. The results were statistically analyzed through usual methods (χ^2 -test). **Results and discussions:** In general, the air concentrations of the individual compounds did not exceed the current limit

Abstracts

values (TLV) excepting ammonia (1.35 TLV) in the workshop of metal restoration, toluene (1.16 TLV) in the workshop of ceramic restoration, formaldehyde (1.04) in the workshop of textiles restoration, toluene (5.6 TLV) and xylene (1.1 TLV) in the laboratories of Christian creed objects conservation. 43.8 % of the exposed had at least one enzyme value above the upper reference limit compared to 7.4 % in controls ($p < 0.01$). Figure 1 shows the frequency of abnormal values of hepatic enzymes in exposed and control groups. The rate of increased ASAT and ALAT levels was statistical significant in exposed as compared with controls. Increase in ASAT activity was found to be associated with increase of hippuric acid (in 28 % of exposed versus 4.5 % in controls) and methylhippuric acid (in 24 % of exposed versus 4 % in controls) as well as with the diminution of sulphate index (in 33 % of exposed versus 8 % in controls) (figures 2, 3, 4). No differences in serum protein electrophoresis were shown when the exposed and referent group were compared. **Conclusions:** the significantly rate of the biochemical alterations of some liver enzymes and biomarkers in exposed may be associated with the presence of the hazards in the work places air. It was concluded on the prophylactic value of these indicators and their utility in finding out hepatic disorders caused by chronically exposure to a mixture of chemical agents.

Correspondence:

Ing. Valeria Hurduc

Chimist specialist

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: valihurduc@yahoo.com

CORRELATIONS CONCERNING THE HEMATOLOGICAL INVESTIGATIONS AND SOME BIOMARKERS OF EMPLOYEES IN A MUSEUM COMPLEX

Mirela Ghițescu, Brigitte Scutaru, Eugenia Dănulescu, Felicia Grădinariu, V. Cazuc

Institute of Public Health Iași, Romania

Aim. The objectives of this study are to present the haematological changes and the correlations of the haematological indicators and some exposure/effect biomarkers in employees from restoration laboratories of a museum complex. **Materials and methods.** Our study included a preliminary step based on performing environmental measurements. The levels of certain toxic substances (acetone, toluene, ammonia, heavy metals, acetic acid, and formaldehyde) in the workplace air were determined. We investigated 36 employees with the mean age of 44.02 ± 10.81 years and a mean length of work of 13.22 ± 8.83 years, who work in different laboratories: restoration of ceramics, metals, paintings, wood, paper, textiles. The battery of tests included: exposure tests (sulphate index, hippuric acid-U, methylhippuric acid-U) and biological effect tests - blood tests (hematocrit, hemoglobin, platelets, including the examination of a stained peripheral blood film) and markers of antioxidant (erythrocyte superoxid dismutase) and prooxidant processes (serum thiobarbituric acid reactive substances). We investigated a control group either, with the same structure by age, sex and socio-economic features. The results were statistically analysed through usual methods (χ^2 -test). **Results and discussions.** The toluene, ammonia and formaldehyde levels were higher than the permissible exposure limit in the workshops of ceramic, metal and textile restoration,

Abstracts

respectively. The values for sulphate index, lower than normal in 61.4% of the exposed compared to 1.6% of the controls, correlated negatively, statistically significant, with the length of work. The decrease of the hematological parameters were found only in a few cases, especially on the erythrocyte series (hematocrit in 33.33% cases, hemoglobin 30.55%) and platelets (16.66%). The values for hematocrit correlated inverse linear, statistically significant, with the hippuric acid ($r=-0.51$, $p<0.05$) and superoxid dismutase ($r=-0.48$, $p<0.05$) concentrations, and the indicator - haemoglobin with methylhippuric acid level ($r=-0.53$, $p<0.05$). **Conclusions.** The hematological modifications observed point out the noxious potential that exists at the working places. According to the correlations the alterations of hematological indicators are in close association with hippuric and methylhippuric acid eliminations, as well as with superoxid dismutase levels. The cases with problems should be investigated in dynamics for their further evolution.

Correspondence:

Dr. Mirela Ecaterin  Ghiteacu

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, Rom nia

E-mail: mghiteacu@yahoo.com

INFECTIOUS DISEASES IN OCCUPATIONAL MEDICINE

CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF PROFESSIONAL DIAGNOSIS OF THE LEPTOSIROSIOSIS

I. Toma¹, Iulia-Rahela Marcu¹, M. G. Bunescu¹, M. B. Toma²

1. University of Medicine and Pharmacy, Craiova, Romania

2. Medical Center "TOMMED" Craiova, Romania

Introduction: Leptospirosis is a bacterial zoonosis, more frequently in occupational environment than diagnosed and declared as occupational disease. The thesis had as objective, besides the disease diagnosis establishment and making evident some occupational criteria of these disease in given cases. **Methods:** The authors present a research done on two hotbeds of leptospirosis – one in the piscicultural sector, and the other at the swine farmer – where such diseases were reported, evolving as serious forms of jaundice – hemorrhages that requested hospitalization in the Infectious Disease Clinic of the respective persons.

The methodology includes specific clinic and paraclinic investigation which were extended to the entire group of workers professionally exposed, being done RAL and RFC procedures, which made evident the immunomarkers which shows the infestation of the persons with professional risk. **Results:** The results showed that:

- in both cases, almost half of the respective population was affected. The etiological aspect of the disease was: *Leptospira ictero* – hemorrhage, at the piscicultural farm, and *Leptospira Pomona* at the swain farm.

The difficulty in establishing the diagnosis of professional disease consisted in:

- belated report of the persons infected, labeled as suspicious professional disease:
 - o non-existence of some specific investigation on the animal before the people got sick;

Abstracts

- the difficulty collaboration between the basics human and veterinary medical units.

The work conditions which allowed the contact of the worker skin with the contaminated water (feeding of fish) and with the water and animal food (the swain farm), as well as the existence of the leptospirosis natural source present of the both companies, where the basis of the professional disease diagnosis. **Conclusions:** The results demonstrate the necessity of the medical supervision, only in the warm seasons of the animal stock, as well as the workers from the working places with pathogenic potential and application of the prophylactic measures.

Correspondence:

Prof. univ. Dr. Ion Toma

Medic primar

Universitatea de Medicina și Farmacie Craiova

Str. Petru Rareș nr. 4

200349 Craiova, România

E-mail: itoma@umfcv.ro

OCCUPATIONAL HEALTH ASPECTS OF AVIAN FLU - A WHO PERSPECTIVE

Dana Dabala

Public Health Agency - Ministry of Transports, Department of Occupational Medicine,
ClujNapoca, Romania

It is only a matter of time –said Dr. Lee Jong – Wook ,WHO Director General – before an avian flu virus –most likely H5N1 acquires the ability to be transmitted from human to human , sparking outbreak of human pandemic influenza .Pandemic by definition will involve the infection of millions of people ; that’s the reason it would be important to look an Avian flu as an Occupational exposure. Severe acute respiratory syndrome (SARS) taught us the importance of viewing newly emerging infections diseases as an occupational exposure; despite existing precautions, Health Care Workers (HCW ’s) are occupations at high risk of infection from newly emerging infections diseases; other occupations which are at the highest risk of Avian flu exposure/infection are: Small and large scale Poultry Farmers, Bird Cullers, Veterinarians, Bird Handlers at Markets, Food Handlers, Medical Care Support Staff, Laboratory workers involved with Avian flu vaccine production, Airline Flight Crews. How can these occupations protect themselves: specific measures as personal protective equipment and antiviral medication are important; protective plans should be developed using Occupational Health concepts. There is an Occupational Health Paradigm: engineering controls (vaccine, antiviral medication, isolation rooms for infected bird, humans), administrative controls (sheltering birds from contact with wild birds) and industrial worker controls (Personal Hygiene/ Food Safety ,Personal Protective equipment); WHO and other international organizations (NIOSH, OSHA, FAO, European agency for Safety and Health) made general recommendations and specific protective guidelines that would be better to be used for all high risk occupations.

Correspondence:

Dr. Dana Dăbală

Medic primar

Ministerul Transporturilor, Construcțiilor și Turismului, Agenția de Sănătate Publică Cluj-Napoca

Str. Câmpeni nr. 3

400200 ClujNapoca, Romania

E-mail: danadabala@yahoo.com

THE RISK OF CONTAMINATION WITH THE HEPATITIS B VIRUS AT THE MEDICAL PERSONAL

I. Toma¹, Iulia-Rahela Marcu¹, Ș. C. Florea³, M. B. Toma², Florina Savu⁴, M. G. Bunescu¹

1. University of Medicine and Pharmacy, Craiova, Romania

2. Medical Center "TOMMED" Craiova, Romania

3. Glaxo Smith Kline

4. Clinical Emergency Hospital Craiova, Romania

Introduction: Infection with the hepatitis B virus is the most frequently cause of occupational morbidity at health workers. **Methods:** The objective of our study was to evidence the risk of infection with hepatitis B virus for the health care personnel, occupationally exposed. In this aim we have researched the presence in serum of the anti HBc antibodies (IgM and IgG), as markers of the infection, and the presence of the antigenum HBs as the portage state. The health care personnel exposed to occupational infection were identified relied on pre-established criterion and divided in 4 professional groups and in 2 groups of hospitals from Craiova. The control group was formed from 249 serums taken on from parsons coming for analyses in ambulatory. **Results and commentaries:** Analyzing the results we are able to assess that the prevalence of hepatitis infection with occupational cause is 44,7% and at the control group. The prevalence of infection is greater at the undergraduate and auxiliary personnel and it increase significantly with the age. **Conclusions:** This study evidences the necessity of apply the protective methods at the health care personnel.

Correspondence:

Prof. univ. Dr. Ion Toma

Medic primar

Universitatea de Medicina și Farmacie Craiova

Str. Petru Rareș nr. 4

200349 Craiova, România

E-mail: itoma@umfcv.ro

NOISE RELATED HEALTH RISK – DATA AND CONSEQUENCES

THE NOISE ANNOYANCE: SUBJECTIVE ASPECTS AMONG LYRICAL ARTISTS

Veronica Oprea, Cornelia Mihalache, Brandusa Constantin, Corina Papaghiuc

University of Medicine and Pharmacy "Gr. T. Popa" Iași, Romania

The annoyance generally occurs either when the noise interferes with the people's ability to carry out an activity that they wish to do, either when the individual feels unable to be in control of the situation. By definition, noise is an unwanted (disturbing) sound, whereas music is often referred to as being a wanted and enjoyable sound for professional lyrical artists. The aim of this study was to assess a subjective reaction which can interfere with the ability to carry out a preferred task (vocal interpretation of songs). **Methods:** A group of artists composed of 71 people: 29 men (40.8%) and 41 women (59.2%) with the average age of 36.14 years (SD: 11.11; 20-58) and the exposure length of 13.3 years (SD: 9.71) was

Abstracts

submitted to an analysis during this study. Their daily activity is organized in 4 hours of rehearsal (single voice or with the entire group and frequently in vocal-symphonic reunions) and 4 hours of individual practice (either at home or at the Philharmonics). They give public performances (concerts) once or twice a week (with a total of 100 performances per year locally or internationally). A questionnaire (consisting in 7 items) regarding general mental health was filled in by the examiners and an interview regarding professional activity was performed simultaneously with clinical examination. The sound level (measured during vocal-symphonic rehearsals) was of 94 - 97 dB (A). **Results:** A number of 47 subjects (66.2%) claimed to have experienced anxiety, 56 subjects (78.9%) mental fatigue, 26 subjects (36.6%) sleep disorders, 46 (64.8%) memory disorders and 34 subjects (47.9%) irritability and headaches. The most annoying noises were those generated by powerful instruments and by the fortissimo interpreted parts. **Discussions:** These results suggest that noise may indeed have some responsibility for personal disorganization of those working (and living) in noisy occupational environments. **Conclusions:** It is difficult to ascribe these effects solely to noise, because there is a variety of other stress factors associated with noisy workplaces and a number of variables which are related to the types of people who are likely to work in those places. The noise is likely to act in the same manner as general stress factors rather than affect the brain directly and the final effect is one of reduced comfort and increased annoyance.

Correspondence:

Șef lucrări Dr. Veronica Oprea

Medic primar

Universitatea de Medicină și Farmacie Iași

Str. Universității nr. 16

700115 Iași, România

E-mail: stefop@icmpp.ro

EXPERIMENTAL TOXICOLOGICAL FINDINGS – IMPLEMENTATION IN HEALTH PROTECTION AT THE WORKPLACE

BIOCHEMICAL INVESTIGATIONS CONCERNING THE EXPERIMENTAL EXPOSURE TO 2,4 – DICHLOROPHENOXYACETIC ACID SIMULTANEOUSLY WITH THE POSSIBLE PROTECTIVE EFFECT OF CERTAIN AMINO ACIDS

A. Maftai, Irina Alexandrescu, Doina Popa, Doina Havârneanu, Felicia Grădinariu, Valeria Hurduc, Mirela Ghițescu, Brigitte Scutaru

Institute of Public Health Iași, Romania

The aim of the study is to assess some biochemical indicators possibly involved in the protection conferred by certain amino acids in experimental exposures to the herbicide 2,4-D. For this purpose white male Wistar rats were used, for which we conceived a subacute experiment. The dose for 2,4-D was of 300 mg/kgbw (3/4DL₅₀), and for the protective compounds – the medicine Metaspar and Cysteine, doses enough big to inhibit the unwanted effects generated by the use of 2,4-D. The analysed parameters belong to the metabolisms of proteins, glucids and lipids respectively. The performed analyses showed a possible positive effect, especially for the process of absorption and biotransformation of the xenobiotic, which appears through the values of the seric albumines and of hepatic glutathion. On the base of the obtained results, we consider that is necessary to continue the investigations by involving certain minerals also, with the assesment of the long term effects.

Abstracts

Correspondence:

Farm. pr. Alexandru Maftai
Cercetător științific principal gr. II
Institutul de Sănătate Publică Iași
Str. V. Babes nr. 14
700465 Iași, România
E-mail: alexandrumaftai@yahoo.com

Moderators:

Univ. Lecturer Dr. Emil Vancu
Dr. chem. Felicia Grădinariu, senior researcher

DATA ACQUISITION AND PROCESSING FOR ERGONOMIC WORKPLACES

A MODEL FOR THE ERGONOMIC RISK ASSESSMENT

Veronica Oprea

University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania

The ergonomic or biomechanical risk is a probabilistic risk in many work-related situations. Despite the perfect mechanical engineering of the bones and joints of the body, it has been found that muscular strength, endurance and fatigue, static forces, uncomfortable angular positions, prolonged repetitive movements can lead to discomfort, pain, musculoskeletal disorders (repetitive strain injuries: RSI). Heavy or repeated muscular exertion may also have other consequences, such as: hypersensitivity, muscular spasms (writer's cramp) and potentially dangerous work-related accidents. The practical methods for making an inventory of biomechanical risks are limited by their own complexity and applicability. There isn't any generally accepted model for evaluating these risks. The **aim** of this study is to present an ergonomic model for evaluation of upper limbs' musculoskeletal disorders. This is a global model based on progressively complex stages beginning with the stage of risk identification by ergonomic check-list and continuing with the stage of video recording and posture and psycho-physiological effort analysis (Borg scale) and ending with goniometric and electromiographic registration. The observations (encoded postures) are electronically memorized and interpreted in terms of duration, force and angulation from normal or accepted variables. This **method** was further utilized in the glass polishing industry where the RSI reached: 7.8% (11 cases) with shoulder tendinopathy, 18.4% (26 cases) with lateral epicondylitis, 5.7% (8 cases) with wrist tenosynovitis and 16.4% (23 cases) with carpal tunnel syndrome (the total number of subjects was 141: 83 women-60.3% and 56 men-39.7% with an average age of 38.78 years-SD: 8.88; 21-56). **Conclusions:** The model analysis points out that there are two overexerting hand positions: the hand position used for polishing and the one used for quality control. This ergonomic model for semi quantitative analysis of biomechanical risk can be also utilized in other professions.

Correspondence:

Șef lucrări Dr. Veronica Oprea

Medic primar
Universitatea de Medicină și Farmacie Iași
Str. Universității nr. 16

Abstracts

700115 Iași, România
E-mail: stefop@icmpp.ro

MODEL OF ERGONOMIC STUDY FOR PROFESSIONAL SINGERS

**Corina Papaghiuc¹, S. Olteanu², Brândușa Constantin¹, Veronica Oprea³, E. Carja¹,
Cornelia Mihalache¹**

1. University of Medicine and Pharmacy “Gr. T. Popa”, Department Occupational Medicine, Iași, Romania
2. University of Medicine and Pharmacy “Gr. T. Popa”, Department Public Health, Iași, Romania
3. Faculty of Bioengineering, Department of Occupational Medicine Iași, Romania

Ergonomic approach of activities it's a relatively new domain of research, with great expectations in development of work quality. In the characteristic case of professional singers this type of approach is nearly absent. This work tries to indicate to implement an ergonomic check list model for chorus members (Filarmonica Iasi). The first stage contains a description of the “work process” (vocal emission), of the elements that interfere in this process (phonatory system, vertebral column and psychic condition), and of the working conditions (concert hall). For the achievement of this model have been used also information obtained from chorus members after a questionnaire (medical and psychological). As a result of centralizing this dates were relieved additional factors that professional singer have considered with greatly stress. The rise of occupational pathology of this segment of active population (professional singer) requires the necessity of a profound ergonomic research and to find out solutions to maintain a good health for the employee and his voice.

Correspondence:

Prep. Dr. Corina Papaghiuc

Medic specialist
Universitatea de Medicină și Farmacie Iași
Str. Universității nr. 16
700115 Iași, România
E-mail: ligia_6600@yahoo.com

ASPECTS REGARDING VISUAL OVERLOADING FROM A GROUP OF PERSONS ON DUTY WITH A VIDEOTERMINAL

Florina Gherman¹, Elena-Ana Pauncu¹, Madia Hanna¹, Delia Cheptanariu¹, Loredana Tămaș¹, Oana Popescu²

1. University of Medicine and Pharmacy „Victor Babeș” Timișoara, Romania
2. Rational Med Center Timișoara, Romania

Aim: Computer's informational processing had made the work on the videoterminal to be an usual method in many activity domains. The goal of this study was to put in evidence the visual troubles found in persons that work with a PC more than four hours/day compared with a control group. **Material and Methods:** The studied group consisted of 50 persons (sex ratio=11/39), with average age 37.5±9.9 years. Control group had 25 subjects. All 75 subjects were submitted to clinical and optamoogical examination (ophtalmoscopy, visual acuity, cromathic feeling) and filled-in a questionnaire regarding ocular symptomatology. The results

Abstracts

obtained were processed with Epi Info 6 software. **Results:** 48% of exposed subjects had tearful symptoms, 28 % had ocular congestion, 16 % complained of photophobia and ocular spots, 14 % had ocular pains, 10 % visual “foggy” and eye impurity sensation combined with smarting pain. For their visual troubles, 34 % of subjects needed proximity correction (21 % in control group) and 12 % needed distance correction (6 % in control group). Significant differences were noticed between age groups in both investigated groups. **Conclusion:** If the adapted astenopy and worsening short-sightedness existent are considered professional diseases another refraction trouble mostly common is short-sightedness astigmatism which also should be considered as having occupational ethiology in videoterminal workers.

Correspondence:

Asist. univ. Dr. Florina Gherman

Medic specialist

Universitatea de Medicina și Farmacie Timișoara

Str. Uta Ioan Colonel martir nr. 2

300041 Timișoara, Romania

E-mail: gflorinag@yahoo.com

INDOOR AIR QUALITY

NEUROPSYCHIATRIC SYMPTOMS AT LOW-LEVEL EXPOSURE TO STYRENE

Elke Brinkmann, H. J. Zeller

Federal Institute for Occupational Safety and Health, Berlin, Germany

Considering the possibility of neuropsychiatric disorders of neurotoxicants a screening to detect early signs of effects is required for the medical checkup. The aim of this study was to prove the quality of the German „Psychological-Neurological Questionnaire“ (PNF) version I and II for screening workers of the reinforced plastic industry exposed to low-level styrene.

There was a significant correlation ($p < 0,05$) between airmonitoring data and the scales of the PNF: psycho- and neurovegetative lability (correlation = coefficient 0,4809), neurologic symptoms (0,3875), lack of activation (0,4533), special symptoms (0,4720) and the total sum score (0,5465). The suspected neurotoxic influence predicted with the questionnaire could be confirmed with the background program (neurobehavioral tests including intellectual, sensory and motor functions as well as memory, nerve conduction velocity, electromyography and a clinical neurological examination) in most cases. The prediction of the PNF I (PNFII) was correct in 72,4 % (68,9 %) with a misclassification of 3 (4) cases and 5 (5) cases to control.

- ⇒ Even below the current threshold value of $85 \text{ mg/m}^3 = 20 \text{ ppm}$ there was a positive correlation between the exposure and the complaints registered with the PNF.
- ⇒ Questionnaires are able to indicate early neurotoxic effects.
- ⇒ The PNF should be integrated in medical checkups of workers exposed to neurotoxic agents.

Correspondence:

Dr. med. Elke Brinkmann

Norddeutsche Metallberufsgenossenschaft

Seligmannallee Nr. 4

30173 Hannover, Germany

E-mail: elke.brinkman@nmbg.de

THE RELATION BETWEEN INDOOR AIR POLLUTION IN SCHOOLS AND CHILDREN'S ACUTE RESPIRATORY DISEASES

Irina Roman¹, Gabriela Mitroi¹, Aurelia Cordeanu², Andra Neamtu¹, Alexandra Cucu³

1. Institute of Public Health Bucharest, Romania

2. University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania

3. Medical Directorate MAPN, Romania

Introduction. There are many sources of indoor air pollution. These include combustion sources such as oil, gas, kerosene, coal, wood, and tobacco products; building materials and furnishing (release pollutants more or less continuously) as diverse as deteriorated, asbestos – containing insulation, wet or damp carpet; products for household cleaning and maintenance, personal care, or hobbies (release pollutants intermittently); central heating and cooling systems and humidification devices; and outdoor sources such as radon, pesticides, and outdoor air pollution. High pollutant concentrations can remain in the air for long periods after some of these activities. Health effects from indoor air pollutants may be experienced soon after exposure or, possibly, years later. **Methods.** **A.** Immediate effects may show up after a single exposure or repeated exposures. These include irritation of the eyes, nose, and throat, headaches, dizziness and fatigue. Symptoms of some diseases, including asthma, hypersensitivity, pneumonia and humidifier fever, may also show up soon after exposure to some indoor air pollutants. The likelihood of immediate reactions to indoor air pollutants depends on several factors: 1. Age – especially infant population and old age population which are persons with an organism which isn't completely develop or with a lowest imunitary system. 2. Preexisting medical conditions – cold or other viral diseases. 3. Individual sensitivity- which varies from person to person. **B.** Other health effects may show up either years after exposure has occurred or only after long or repeated periods of exposure. These effects, which include some respiratory diseases, heart diseases, and cancer, can be severely debilitating or fatal. In this study we've measured the levels of chemical and microbiological pollutants in some school classes in different schools from Bucharest and we've delivered some questioners about acute and chronic respiratory symptoms to the children which were learning in the same classes. **Results.** From diagrams we can see that the acute and chronic respiratory symptoms can be influenced by air indoor pollution. Children are the population which have the higher sensibility, because they have an organism which is in develop, and a lowest imunitary system. **Conclusions.** The very early conclusions are following: the level indoor air pollutants are very important, especially for young children because on this age can start many respiratory diseases which in future mean many human and economical implications.

Correspondence:

Dr. Andra Neamtu

Medic primar, cercetător științific principal gr. II

Institutul de Sănătate Publică București

Str. Dr. Leonte nr. 1-3

76256 București, Romania

E-mail: nvi_andra@yahoo.com

ASSESSMENT BY AMBIENT MONITORING IN DIFFERENT OCCUPATIONAL BRANCHES

V. Cazuc, A. Maftai, R. Brănișteanu, Brigitte Scutaru

Institute of Public Health Iasi, Romania

Aim. The assessment of occupational risk by monitoring of workplaces in different activity areas. **Material and method.** We performed the monitoring of certain hazards in 2004 and 2005, as follows: dusts, asphyxiant gases, irritant gases, organic solvents, noise, asbestos fibres. We assessed the environment for 397 workplaces in 2004 and in 2005 for 201 workplaces respectively. The measured values were compared with the republican threshold exposure limits. **Results and discussions.** Our results show exceedings of the threshold limits at 30.8 % of the values measured in 2005 and in 25.2 % of the values measured in 2004. The study presents the hazards as they were grouped on type, occupational activity domain, state companies and small and medium enterprises. **Conclusions.** Although all activity domains benefit of occupational health and security services, there are still problems concerning the measures of reduction of the level of hazards, mainly because of the lack of funds either in state companies or small and medium enterprises.

Correspondence:

Ing. Viorel Cazuc

Chimist specialist

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: viorel_cazuc@yahoo.com

AMBIENT AND BIOLOGICAL MONITORING OF ELECTROPLATING WORKERS

Brigitte Scutaru¹, V. Cazuc¹, Valeria Hurduc¹, A. Maftai¹, Irina Popescu¹, Iliana Palamaru¹, Raluca Dănulescu², Ana Maria Fotea³

1. Institute of Public Health Iași, Romania

2. University of Medicine and Pharmacy “Gr. T. Popa”, Iași, Romania

3. “SAN GIUSEPPE R.S.A.”, Sorlago, Italy

Objective: The aim of this study was to estimate the occupational exposure risk of electroplating plant's workers. **Materials and methods:** Indoor air quality was evaluated by workplace measurements of chemicals (cadmium, chromium (VI), nickel, lead, trichloroethylene, cyanide, sulphuric acid, zinc oxide, sulphur dioxide, sodium hydroxide) and of the microclimate (temperature, humidity, air velocity) in cadmium-nickel-chrome electroplating and zinc coating units. For the determination of internal exposure 69 workers (mean age: 42.7±6.3 years, mean exposure length: 20±7.4), including 28 women, and a matched control group (72 subjects) were examined in a cross-sectional study. Whole blood samples were analyzed for lead and cadmium and post-shift urine samples for beta2-microglobulin, delta-aminolevulinic acid and sulphate index. The dermal exposure levels of heavy metals were measured by wipe sampling in combination with adequate analytical techniques. The results were statistically analyzed through usual methods (Student's t-test, χ^2 -test). **Results and discussion:** Airborne concentrations exceeded threshold limit values (TLV-

Abstracts

TWA) for cadmium (1.0 mg/m³), chromium (0.12 mg/m³), trichloroethylene (210 mg/m³), sulphuric acid (1.11 mg/m³), cyanide (1.6 mg/m³) and sodium hydroxide (2.4 mg/m³). Mean concentrations of lead and cadmium in whole blood, of dermal chrome, cadmium and nickel and of urinary beta2-microglobulin and delta-aminolevulinic acid were significantly higher among electroplaters than in controls. The prevalence of increased blood cadmium (> 5 µg/l) and urinary beta2-microglobulin (> 2 mg/l) was significantly higher in exposed versus controls. A positive correlation was found between urinary beta2-microglobulin and blood cadmium levels. **Conclusions:** Our results are in line with others reported in the literature. The study revealed the presence of a high occupational risk in metal plating shops. The concentrations of a great number of chemicals, some of them inducing cancer, exceeded the allowed exposure limits. The used biomarkers proved to be valuable biomonitoring tests. The results suggest that beta2-microglobulin is a sufficiently sensitive indicator for use in monitoring heavy metal occupational exposure, especially for cadmium. As a complement to traditional exposure assessment, monitoring deposition of aerosols can be a simple and quick screening method for identifying deposited aerosols. Even if there are no occupational hygienic limit values for dermal exposure, the obtained results are relevant when compared with those of a reference group.

Correspondence:

Dr. Ing. Brigitte Scutaru

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: bseutaru@yahoo.com

SPECIALS

SOME HEALTH EFFECTS RELATED TO OCCUPATIONAL EXPOSURE OF HEALTH CARE WORKERS

Eugenia Dănulescu¹, Felicia Grădinariu¹, Mirela Ghitescu¹, V. Cazuc¹, Daniela Constantinescu¹, Carmen Cozmei¹, Răzvana Dănulescu², Raluca Dănulescu², Doina Ivanovici³, Ana Maria Fotea⁴

1. Institute of Public Health Iasi, Romania

2. University of Medicine and Pharmacy "Gr. T. Popa" Iasi, Romania

3. Authority of Public Health, Iași, Romania

4. "SAN GIUSEPPE R.S.A.", Sorlago, Italy

Aim: The assessment of possible health effects of occupational exposure of health care workers in surgical and intensive care services. **Method:** The assessment of the working conditions included ergonomical analysis, GC analysis of noxious substances in the workplaces (halothane, enflurane, isoflurane) and microclimate analysis. The assessment of the health status included a 2 years study. We performed careful occupational and general anamnesis, clinical examination, lung function tests, EKG, biochemical, haematological and immunological analysis (including oxidative stress markers - SOD, TBARS). **Results:** We have studied 128 subjects occupationally exposed in the health care activity at the above described conditions, versus well matched controls. The working conditions analysis revealed

Abstracts

a high level psychological workload, prolonged orthostatism as well as an exposure (under but close to TLV) to some volatile anaesthetics especially to isoflurane. The health status investigation revealed irritative respiratory symptoms, allergic conditions (dermatitis, rhinitis, conjunctivitis), cardiovascular changes, including arterial hypertension and EKG changes, musculoskeletal disorders, digestive apparatus disorders. Lung function tests showed discrete distal obstructions in 45.3% of health care workers. All these changes were significantly greater in exposed vs. controls. SOD and TBARS were significantly higher in exposed ($p < .01$). Serum immunoglobulins changes suggested alteration of the humoral immune response. The anaesthesiologist subgroup had significantly lower percentages of T cells, higher NK cell percentages and slight increase of percent specific cytotoxicity compared to a lower exposed group. Citogenetic investigations revealed a higher rate of subjects with micronuclei in oral mucosa exfoliated cells. **Conclusions:** It seems that under TLV occupational exposure to anaesthetic gases could interfere with defence mechanisms. We found frequent irritative respiratory symptoms associated with obstructive dysfunction (mainly distal obstructive syndrome), with serum immunoglobulins changes that suggested an alteration of the humoral immune response, and also associated with an increase of oxidative stress markers. The assessment of the possible effect of AE on the immune function suggests that anesthetic gases could interfere with the immune function of the occupationally exposed persons. Our findings seems to support the necessity of closely survey the immune status of exposed anesthetists, as well as the other biological modified parameters in order to completely understand their underlying action mechanisms. We consider that further research is needed and that some exposure standards need to be reconsidered.

Correspondence:

Dr. Eugenia Dănulescu

Medic primar, cercetător științific principal gr. II

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: razdan@iasi.mednet.ro

THE EFFECT OF EXTREMELY LOW FREQUENCY MAGNETIC AND ELECTRIC FIELDS UPON PERIPHERAL NERVOUS SYSTEM

Karmenina Reaboiu¹, R. Dănulescu², Violeta Borza², Mădălina Bohosievici²

1. Railway University Hospital Iași, Romania

2. Institute of Public Health Iasi, Romania

The impairments of peripheral nervous system are an important part of nervous system pathology, considering both the prevalence and the implications upon the working capability. The diagnosis of causality of a polyneuropathy is often a difficult task. **Aim:** The study of the influences of extremely low frequency magnetic and electric fields (ELF-EMF) on the peripheral nervous system function, as well as the possible implications of these fields in the aetiology of polyneuropathies. **Methods:** The studied group (74 subjects) comprises electric train drivers. The control group (93 subjects) comprises administrative personnel. The methodology included detailed occupational health as well as neurological anamnesis and examinations, biochemical and haematologic tests, and electroneuromyography. The frequency of subjective complaints and of polyneuropathy neurological objective signs, as

Abstracts

well as the electrophysiological changes which could suggest a polyneuropathy was analyzed in both lots. **Results:** The analysis of the frequency of the subjective complaints and of the objective neurological signs consistent with polyneuropathy, did not show significant differences between electric train drivers and controls. The analysis of the frequency of the electrophysiological diagnosed polyneuropathies showed statistical significant differences between exposed and controls (63.51% versus 40.86%, $p = 0.002$). **Conclusions:** The electrophysiological signs which are showing an impairment of peripheral nerves consistent with a polyneuropathy, precede the clinical changes of polyneuropathy. The results obtained in this study allow to state that there is an association between the exposure to ELF-EMF and the appearance of polyneuropathy, but without establishing a causality relationship between exposure and effect. This study brings arguments for the enlargement of the nosologic frame of physical agents induced polyneuropathy. So we consider that the exposure to ELF-EMF should be taken into consideration as a possible risk factor in the aetiology of polyneuropathy, or in the process of aggravation of another causes acquired polyneuropathy.

Correspondence:

Dr. Karmenina Reaboiu

Medic primar

Spitalulul Universitar CFR Iași

Str. Garabet Ibrăileanu nr. 1

700506 Iași, Romania

E-mail: kreaboiu@yahoo.com

POTENTIAL HEALTH IMPLICATIONS IN OCCUPATIONAL EXPOSURE TO EXTREMELY LOW FREQUENCY MAGNETIC AND ELECTRIC FIELDS

R. Dănulescu¹, C. Goiceanu¹, Violeta Borza¹, Karmenina Reaboiu², Carmen Cozmei¹, Daniela Constantinescu¹, Carmen Croitoru¹, Raluca Dănulescu³, Răzvana Dănulescu³, Doina Ivanovici⁴

1. Institute of Public Health Iasi, Romania

2. Railway University Hospital Iași, Romania

3. University of Medicine and Pharmacy “Gr. T. Popa” Iasi, Romania

4. Authority of Public Health, Iași, Romania

Aim: To put into evidence possible health effects of occupational exposure to extremely low frequency (ELF) magnetic and electric fields of relatively low levels. **Method:** Exposure evaluation included magnetic (magnetic flux density) and electric fields (intensity) measurements and ergonomic analysis. The health status analysis comprised 3 years study concerning ELF effects upon cardiovascular system, nervous system and the immune function. We have used careful cardiological investigations, including EKG, psychological tests and neurological examinations, including electroneurography. In order to investigate the possible carcinogenic risk of ELF fields and their influence on immunocompetent cells, we assessed the p53 protein and peripheral blood cells subpopulations. **Results:** 129 subjects occupationally exposed to ELF fields, vs. 93 well matched controls were studied. The measured ELF fields in the workplaces had magnetic flux densities of .8-34.5 microtesla (μT), and intensities of electric fields ranged between 25V/m and 32 kV/m. The health status investigations revealed:

- nervous system changes, both at the central level (frequent neurasthenia increase of the reaction time, decrease of motor velocity and precision – $p < .05$) as well as at the peripheral

Abstracts

level (electroneurography parameters changes – hypoexcitability, polyneuropathy aspects – decrease of nerve motor and sensitive conduction velocities - $p < .05$).

- cardiovascular changes (arrhythmias, conduction disturbances, myocardial ischemia changes – $p < .05$)

We found some correlations with exposure levels and length of service.

- 58.8% of exposed subjects were positive for protein p53 vs. 0 in controls.

Conclusions: Our study seems to point out that ELF occupational exposure could be a risk factor for nervous system and for cardiovascular system. It seems that we have to deal with a mechanism in which the myelin is primarily damaged and the axon is subsequently injured. It also appears the possibility that ELF fields are involved in the genesis of complex changes of myocardial excitability and conductivity, as well as in the ischemia pathogenesis. Further survey could confirm if these findings are important not only for occupational health but also for neurology and cardiology. Concerning the immunological findings, it is possible that this accumulation of p53 in the monocyte nuclei, find in a nonneoplastic condition, could indicate an early change towards carcinogenesis. Further survey seems also to be important to see if the detection of p53 could be indeed considered a useful test for assessing lymphocyte DNA changes in ELF fields occupational exposure.

Correspondence:

Dr. Răsvan Dănulescu

Medic primar, cercetător științific principal gr. II

Institutul de Sănătate Publică Iași

Str. V. Babes nr. 14

700465 Iași, România

E-mail: razdan@iasi.mednet.ro

EPIDEMIOLOGICAL SURVEY UPON OCCUPATIONAL DISEASES IN MOLDAVIA DISTRICTS

Carmen Croitoru¹, Doina Popa¹, C. Botezatu², Carmen Biclea², Crenguța Roșca³, Elena Vrabie⁴, Doina Ivanovici⁵, Rodica Țugulea⁶, Georgeta Budacea⁷

1. Institute of Public Health Iași, Romania

2.3.4.5.6.7. Authorities of Public Health Bacău, Botoșani, Galați, Iași, Suceava, Vaslui, Romania

Aim. A survey on occupational diseases (OD) registered in North-East Romania districts along the last 6 years was performed. **Methods.** A data-base of declared OD in the 8 districts of Moldavia region in 2000-2005 was done. **Results.** There was an increased frequency of OD along the first three years; in the last 3 years of studied time there was a decrease of 40 per cent comparatively with the year before. Silicosis, noise induced occupational diseases (NIOD) were the most frequent OD every year. Biological-induced OD were the 3rd frequent OD in the last 2 years. Silicosis was the first in 2000, 2003, 2004 and NIOD in middle years. Suceava and Iași declared the greatest number of OD all over this time. More districts (Neamț, Bacău and Botosani) placed on the third seat, every year. The most exposed fields of activities are mine industry and machine manufacturing industry. The most frequent profession are miner and locksmith. **Conclusions.** The number of OD increased in the first three years.

1. Silicosis and noise induced occupational diseases (NIOD) were the most frequent OD.

2. Suceava and Iași declared the greatest number of OD all over this time.

Abstracts

Correspondence:

Dr. Carmen Croitoru
Medic primar, cercetător științific principal gr. III
Institutul de Sănătate Publică Iași
Str. V. Babes nr. 14
700465 Iași, România
E-mail: clilianacarmen@yahoo.com

THE IMPORTANCE OF CLINICAL EXAM FOR FINDING DIAGNOSIS – CASE PRESENTATION (NEUROFIBROMATOSIS)

Florina Filip – Ciobotaru¹, M. Turiceanu¹, Loredana Turiceanu², C. Iacob², V. Bohotin¹, Liliana Foia¹, G.I. Pande¹

1. University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania
2. Rehabilitation Hospital of Iași, Romania

The clinical exam associated with a detailed anamnesis is able to establish diagnosis and laboratory will only have to sustain it. There are highly suggestive, if not pathognomonic clinical signs for a certain pathology, as macula “café au lait” (larger than 15mm to patients older than 15 years) associated with neurofibromatosis. Although the disease is quite rare, only 1/3 of the patients having complex clinical associations, the diagnosis is essential for employment and for the genetic advice. We will present a patient with neurofibromatosis associated with mental retardation and multifactor pulmonary disease.

Correspondence:

Șef lucrări Dr. Florina Filip - Ciobotaru

Medic primar
Universitatea de Medicină și Farmacie Iași
Str. Universității nr. 16
700115 Iași, Romania
fleur@iasi.mednet.ro

THE IMPORTANCE OF CLINICAL EXAM – BOURNEVILLE TUBEROUS SCLEROSIS

Florina Filip – Ciobotaru¹, M. Turiceanu¹, Loredana Turiceanu², C. Iacob², V. Bohotin¹, Liliana Foia¹, G.I. Pande¹

1. University of Medicine and Pharmacy “Gr. T. Popa” Iași, Romania
2. Rehabilitation Hospital of Iași, Romania

Clinical examination associated with a well done anamnesis should remain essential in modern medicine. There are pathogenic aspects that show the diagnosis even on patient's inspection. One example is nail fibromas for Bourneville tuberous sclerosis, hereditary transmitted disease (autosomal dominant and in some cases recessive). The disease belongs to the facomatosis group, diseases secondary to an abnormal mixing of tissues and also characterized by the development of cavities in nervous system. We will present a patient with a late diagnosis of Bourneville tuberous sclerosis, diagnosed by clinical examination and confirmed by laboratory tests.

Abstracts

Correspondence:

Şef lucrări Dr. Florina Filip - Ciubotaru

Medic primar

Universitatea de Medicină și Farmacie Iași

Str. Universității nr. 16

700115 Iași, Romania

fleur@iasi.mednet.ro

THE VALUE OF VENTILATION FUNCTION TEST OF WELDERS

Iulia-Rahela Marcu¹, I. Toma¹, M. G. Bunescu¹, M. B. Toma², Florina Savu³,

1. University of Medicine and Pharmacy, Craiova, Romania

2. Medical Center "TOMMED" Craiova, Romania

3. Clinical Emergency Hospital Craiova, Romania

Introduction: In the industrial environment there are many professions which expose the human body to occupational stress and the combined action of the professional risk factors.

Material and method: The study was effected on two groups: a professional exposed one, consisting of 125 welders, and a statistical representative control group, consisting of 125 persons from administrative sector. The statistical variables studied were:

- the multi-annual dynamic of professional exposure to nitrogen oxides and carbon monoxide;
- the distribution of the exposed workers, depending on the age; their ages were between 30 and 50 years, with an average of $42,5 \pm 3,02$ years;
- the repartition, depending on the length of service, between 5 and 20 years, with an average of $14,2 \pm 2,6$ years,
- the general clinical examination, especially of the respiratory apparatus;
- the ventilator functional tests: CV VEMS, IPB, DEM $25-75\%/CV$ and PEF 50%

Results and commentaries: The level of the professional exposure was estimated through the cumulated action of the chemical noxes resulted in the welding operation: nitrogen oxides and carbon monoxide, harmful chemical agents with additional increasing action. The predominance of the welders, depending on the length of service, belongs to the welders with a length of 11 – 15 years. The alteration of CV, VEMS and IPB mean an induction, in the long run, of mixed ventilator dysfunction of the constrictive and obstructive phenomenon being almost equal. It's noticeable the predominance of the permeability alteration and of the obstructive syndrome at the level of small airy pathways at the professional exposed group.

Conclusions:

- The professional exposure at welding gases by the cumulated additional increasing effect affects the health and the working ability.
- The pulmonary ventilator functions are affected in all their components.
- The affectation of the small airy pathways is precocious and permits to diagnose the pulmonary dysfunction in the beginning.

Correspondence:

Asist. univ. Dr. Iulia Rahela Marcu

Medic specialist

Universitatea de Medicină și Farmacie Craiova

Abstracts

Str. Petru Rareş nr. 4
300041 Craiova, România
E-mail: itoma@umfev.ro

RISK FACTORS PECULIARITIES RELATED TO STATUS HEALTH OF WORKERS IN TWO SECTIONS OF PHARMACEUTICAL PRODUCTS FACTORY FROM IASSY

Violeta Borza, Mădălina Bohosievici, Brigitte Scutaru, Carmen Croitoru, Mirela Ghişescu,

R. Dănulescu, Valeria Hurduc, A. Maftעי, V. Cazuc
Institute of Public Health, Iasi, Romania

Objective: 1. To assess the risk of occupational exposure to cumulated hazards for the employees of a Section of Nistatin Biosynthesis and of a Section of Injectable Antibiotics from a pharmaceutical enterprise in Iasi. 2. To evaluate the potential impact on the health status of the exposed personnel. **Material and method: Section of Nistatin Biosynthesis:** The studied group consisted in 50 employees (9 of them women) with the mean age of 42.1 ± 9.5 years and the mean length of work of 22.6 ± 7.1 years. Professions: employees directly involved in producing process 74% (38); maintenance personnel 26% (12). Stage I: assessment of the working condition factors through environmental measurements and exposure tests. Stage II: health status evaluation through: physical examination, functional exploring, biochemical tests, haematological examination, and measurements of serum immun-globulines. **Results and discussions:** When assessing the *working place conditions* we found in all processing phases the presence of noise, organic solvents and biologic hazards. **Exposure tests:** high rate of pathological values for sulphat index (56%) and acetonuria (36%). **Health status evaluation:** clinical and paraclinical indicators aimed to investigate apparatuses and systems possibly affected by the risk factors. **The results of the clinical exam:** high rate of clinically healthy subjects (24%); polymorph morbidity. Irritative allergic syndromes and skin diseases might be considered as occupationally related diseases. **Functional exploring:** functional ventilatory testing (FVT), electrocardiography (EKG), electroneuromiography (ENMG) and audiometry. We mention the distal discrete obstructive syndromes (38%) enhanced by FVT and the high rate of ENMG changes of polyneuropathic type (42%) – possibly occupationally related. **Section of Injectable Antibiotics** – the same study scheme was applied. The studied group consisted in 50 employees (30 of them women) with the mean age of 37.6 ± 10.2 years and the mean length of work of 15.8 ± 6.3 years. Employees directly involved in producing process - 56%. Stage I: Work place hazards - noise and biological hazard; exposure tests with pathological values: sulphat index (42%). Stage II: The results of the clinical examination: low rate of clinically healthy subjects (10%); polymorphic morbidity. The diseases of locomotor apparatus (52%) and the genitor-urinary diseases (30%) are to be remarked, possibly explained by the big number of women, prolonged orthostatism and unfavourable microclimate. The occurrence of allergic irritative syndromes and allergic diseases is related to the presence of the biologic hazard. The functional exploring, biochemical and haematological investigations present no significant changes. **The determination of serum Ig:** high rate of pathological values for both Sections; possible correlation between the above mentioned allergic reactions and the increase of these

Abstracts

Ig values, related to the initiation of the immune response of the organism through allergic phenomena.

Stage conclusions:

- relatively good health status;
- polymorphic morbidity; for both sections, a high rate of diseases of the locomotor apparatus related to age, length of work and unfavourable work place conditions;
- allergic irritative syndromes and skin diseases considered as occupational related diseases;
- as functional exploring tests, FVT and ENMG enhance functional changes for the Nistatin Section, possibly determined by the risk factors;
- the enhanced values of IgG and IgE appear as immune response to allergic reactions determined by the presence of biological hazards.

Correspondence:

Dr. Violeta Borza

Medic specialist

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: ioanaviva@yahoo.com

OBSERVATIONS CONCERNING THE CYTOLOGICAL ASPECT OF SPUTUM IN OCCUPATIONAL EXPOSURE TO ASPHALT

Doina Hăvârneanu, Irina Alexandrescu, Felicia Grădinariu

Institute of Public Health Iași, Romania

Occupational exposure to volatile ingredients of asphalt (mainly polycyclic aromatic hydrocarbons) is associated by the specialty literature with major risks concerning health status, especially through its malignant type effects. Exfoliative cytology plays an important role for the early diagnose of these effects through the morphological evaluation of epithelial cells exfoliated from the superior respiratory tract. Starting from this point of view, we accomplished the sputum cytological exam to a group of 72 subjects employed in an asphalt preparation station. The gained data were processed statistically by comparing them with those of a matched control group. The changes we found at the exposed group consisted from a qualitative point of view in ferruginous bodies, inflammatory processes, and in certain morphological aspects (nuclear and cytoplasmic atypia) with a suggestive diagnose value, which for certain cytological classes are statistically significant more frequent and more important for the exposed compared to the control group. In this context, the results of the study allow us to affirm that sputum cytology may be used as a simple, non-invasive and cheap screening technique for the prophylaxis of respiratory diseases (especially lung cancer) in employees of sectors with high specific risk, as asphalt preparation stations.

Correspondence:

Dr. biol. Doina Hăvârneanu

Cercetător științific principal gr. III

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: doihava@yahoo.com

POSSIBILITIES FOR THE MANAGEMENT OF THE INFLUENCE OF PSYCHOSOCIAL FACTORS ON HEALTH AFFECTION ACCUSES, IN AN ENTERPRISE OF FOOD PRODUCTS

Gh. Bălăceanu, Carmen Croitoru, Mirela Ghițescu

Institute of Public Health Iasi, Romania

Aim of study. In view of the frequent involvement of psychosocial factors in the sickness processes occupationally conditioned, at the last occupational congress (Milan 2006), was underlined the necessity to find some modalities to manage their influence. Because of the psychosocial factors, by their nature, cannot act and cause effects directly (as the physical factors), between action and effect intermediating the human person (which, both by their psychological and behavioral peculiarities and the previous life experience, can influence the frequency and/or the magnitude of the effect), our study followed the relationships between the frequency of psychosocial factors and the individual level of psychosocial stress resistance (assessed by Aaron Antonovsky's Sense of Coherence scale). **Material and methods.** In a lot of 260 employees from an enterprise of food products (65% men and 35% women), with $41,59 \pm 8,31$ yrs mean age and $13,7 \pm 9,96$ yrs length of service, were studied individual (temperamental and motivational factors), familial and occupational psychosocial factors, which were demonstrated (in a previous study) to be significantly related to subjective accuses of health affection. The significance of the relationships between the studied factors and the individual level of psychosocial stress resistance was proved by χ^2 test (at p levels < 0,05).

Results and discussions. The reduced psychosocial stress resistance appears to be significantly related with: financial difficulties (p=0,009), problems with the circulation of information at the workplace (p=0,029), nervousness in the familial milieu (p=0,01), slowness of decision making in situations involving motivational options (p=0,001), reduced level of activism (p=0,0003), reduced motivation at the workplace (p=0,002), high concentration in occupational activity (p=0,006), extrinsic motivation (p=0,004), high emotionality (p=0,002), major affectation after some potential stressful events experience (p=0,04), leisure time without recuperatory effect (p=0,04), learned helplessness (p=0,04). As concerning the temperamental type, the persons with sanguineous temperament have significantly more frequent a high level of psychosocial stress resistance (p=0,00001). The financial difficulties were significantly associated with the experience of some annoying factors at the workplace (p=0,0008), difficulties of communication at the workplace (p=0,002), a level of affection after some potential stressful events experience (p=0,02), nervousness in the familial milieu (p=0,008), high concentration in occupational activity (p=0,03). Both the tobacco, alcohol, coffee, food consumption and the sleep disturbances, were nonsignificantly related with the psychosocial stress resistance. **Conclusions.** The significant association of psychosocial factors (proved to be significantly related with different individual accuses of health affection, in a previous study), with a reduced level of psychosocial stress resistance, underlines their major importance for the management of the influence of psychosocial factors. In view both of these results and the impossibility to eliminate the psychosocial factors, the interventional strategies to manage their influence on health status, can be conducted both toward general (the developing of individual awareness of individual's psychological and behavioral peculiarities) and specific actions (taking into account of those individual peculiarities) with a view to increase the individual capacity to manage the psychosocial stress.

Abstracts

Correspondence:

Dr. psih. Gheorghe Bălăceanu

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iași

Str. V. Babes nr. 14

700465 Iași, România

E-mail: GheorgheBalaceanu@pub-health-iasi.ro

EMOTIONAL UNCERTAINTY AT THE PEOPLE WHO WORK IN DIFFERENT FIELDS OF ACTIVITY

D. Murărașu, Doina Popa, Cristina Cordoneanu, Carmen Croitoru

Institute of Public Health Iași, Romania

Aim: The evaluation of the emotional uncertainty at the people who work in different fields of activity. **Method and group:** 803 subjects (Men = 31,26% ; Women = 68,74%) who worked in different fields of activity (211 subjects in electronic industry, 241 subjects in furniture industry, 186 subjects in light industry, 165 designer engineers) were examined with the Lüscher Color Test which emphasized the emotional uncertainty, the characteristics of the personality structure. A semistructured questionnaire emphasized the stress of the uncertainty in the workplace. **Results:** 50,06% (Men = 16,19% ; Women = 33,87%) of the examinees have emotional uncertainty; 66,5% (Men = 21,07% ; Women = 41, 43%) of the questioned subjects have the stress of the uncertainty in the workplace. We have got significant relations between emotional uncertainty, the stress of the uncertainty in the workplace and the ability to relax and recuperate, the self-control, pleasure, the reactions to external stimuli, the anticipation and the expectation, the sources of the stress and compensations. **Conclusions:** The association of the emotional uncertainty with the stress of the uncertainty in the workplace and the relations with some sources of stress, compensations and the structure of personality suggests a psychological background which could influence the body and the mind, having a dramatically impact on the health of the subjects.

Correspondence:

Psih. pr. Dan Murărașu

Cercetător științific principal gr. III

Institutul de Sănătate Publică Iași

Str. V. Babes nr. 14

700465 Iași, România

E-mail: moriturusaum@yahoo.co.uk

RADIATION DOSES TO PATIENTS FROM DIAGNOSTIC X-RAY EXPOSURES IN ROMANIA: 2005 UPDATE

Olga Iacob¹, Irina Anca Popescu¹, Mihai Radu Iacob²

1. Institute of Public Health Iași, Romania

2. University "Al. I. Cuza" Iași, Romania

Introduction: The current survey is the fourth one conducted in the last twenty years in Romania and intended both to update the magnitude of patient exposure during conventional

Abstracts

X-ray examinations and to assess national trends in radiation doses received by patients, in order to optimize the radiological protection to population, in a cost-effective manner.

Methods and materials: This survey was conducted during a period from January 2003 to July 2005, in 179 X-ray departments selected by their annual workload, and includes the results of:

- quality control tests to evaluate performances of X-ray equipment in use;
- dose-area product and entrance surface dose measurements during both simple radiographs and complete examinations involving fluoroscopy;
- effective doses estimated for over 20 types of X-ray examination performed by adult and pediatric patients.

Results and conclusions: X-ray equipment was generally found to conform to national specifications and standards; however, the testing revealed several maladjustments needing corrective actions for patient dose reduction. Individual patient effective doses ranged from a few microsieverts for simple radiographic examinations of the teeth, limbs or chest to a few millisieverts for urography (6.5 mSv) and fluoroscopic procedures such as barium enema (7.3 mSv) or barium meal (3.7 mSv). Even the doses received by patients during 2003-2005 are lower than those estimated in the 2000 national survey on medical radiation exposure by 30 percent, on average, their values still indicate an urgent need to develop radiation protection and optimization activities for X-ray examinations, especially in pediatric radiology.

Correspondence:

Dr. fiz. Olga Iacob

Cercetător științific principal gr. II

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: olga_iacob@yahoo.com

ROUND TABLE

OCCUPATIONAL HEALTH AND SAFETY ON YOUNG EMPLOYEES

Chairpersons:

Prof. Dr. med. Gustav Schäcke

Institute of Occupational Medicine, Charité – Universitätsmedizin Berlin of the Freie Universität Berlin & Humboldt-Universität zu Berlin, Germany

Dr. Doina Popa, senior researcher

Institute of Public Health Iasi, Romania

YOUNG PEOPLE IN ROMANIA: HOPE FOR A HEALTHY AND SAFE WORK

Doina Popa

Institute of Public Health Iasi, Romania

According to the Romanian Statistical Yearbook 2004, on the date of 1st of July 2003 Romania had a total population of 21.733.556, from which a number of 1.698.393 were between 15 and 19 years old. Nowadays, many of these young people of compulsory school age decide to get jobs either during the school week, at weekends or during the school holidays. The main problem for the occupational health services in this context is the insufficient legislation, with

Abstracts

poor or no definitions of terms and explanations of specific situations as: work of children (< 15 years old); work of children/young people in agriculture; school absenteeism and the decrease of the instruction level; alcohol, smoking and drugs; work without legal papers; violence in workplaces; young people with physical and especially psychical disabilities; workplaces for young people; emigration of young people. Although in many cases the risks affecting young persons are no different to those affecting older workers, young workers have certain characteristics which may, under some circumstances, result in them being more likely to suffer injury at work. In particular, the following factors should be considered: the chronologic age is different from the physiologic age; the effort capacity is different, depending on sex for the same year of age. Before employing a young person, the health and safety risk assessment must take these specific factors into account: the fitting-out and layout of the workplace and the particular site where they will work; the nature of any physical, biological and chemical agents they will be exposed to, for how long and to what extent; what types of work equipment will be used and how this will be handled; how the work and processes involved are organised; the need to assess and provide health and safety training; and risks from the particular agents, processes and work. The overall rule is that young people under 18 years old must not be allowed to do work in special conditions as: activities with increased physical or psychological demanding; exposure to noxious agents; exposure to carcinogens; exposure to radiations; exposure to extreme cold or heat. Other special issues to be considered by employers of people under 18 years old are: limited working time, according to the regulations specific to the working conditions; interdiction of nightshifts; compulsory resting time, of 2 consecutive days/7 days, and 12 hours on 24 hours respectively. Those who employ young people can help them to understand the importance of health and safety at work. It will serve them well not only in their working life, but in their everyday life as well. Sensible health and safety at work is about managing risks rather than expecting them to be eliminated. Periods of work experience and work-based learning will be the first time that most young people experience the work environment. Good preparation and organisation of placements is essential if these opportunities are to be rewarding and safe introductions to the world of work.

Correspondence:

Dr. Doina Popa

Medic primar, cercetător științific principal gr. I
Director adjunct Institutul de Sănătate Publică Iasi
Str. V. Babes nr. 14
700465 Iasi, România
E-mail: doina.popa@samun.ro

DRUG CONSUMPTION ISSUE IN THE HIGH SCHOOL STUDENTS OF IASI

Raluca Cozma¹, Clementa Vartolomei¹, A. T. Cozma²

1. Institute of Public Health Iasi, Romania

2. University of Medicine and Pharmacy “Gr. T. Popa”, Primary Health Care Assistance and Epidemiology Department, Iasi, Romania

The drug consumption does represent a major issue in regard with the population health. All over the world there is an increase of the drug consumption, especially among the adolescents,

Abstracts

due to the vulnerability of this population group. **Aim:** To evaluate the knowledge, the attitudes, and practices in regard with the drug consumption at the high school students in Iasi. **Method:** Observational descriptive study designed to assess the eventual drugs consumption among the high school students in Iasi. There was studied a group of 530 of high school students, from the IXth. and XIIth. Class, from the 5 high schools. The tool used was an anonymous questionnaire. **Results:** 11% of the students declared that they were tempted to take drugs, and 5% did already consumed drugs. The most consumed drug was hashish/marijuana, followed by tranquilizers. In regard with frequency of consumption most of the students declared a low frequency (once or twice), and none of the students did recognize regular drug consumption. The students were questioned about the possibility of procuring drugs inside the high school, and 7,35% declared that it is possible to procure drugs inside the high school, and 10,75% of the students do know peers, from their high school, which are drug consumers. There a significant difference concerning the temptation of using drugs related with the drug consumption in the entourage ($\chi^2 = 47,909$, $p = 0,000$). Most of the students did declare that they are informed about the risks in regard with the drug consumption, and there is also a significant number, 4,90%, which answered “I don’t know” about the risks. Apart from the questions directly related with the drug consumption, the questionnaire did include questions about alcohol, and cigarette consumption, and also about student violence, and scholar fatigue. **Conclusions:** The drugs consumption among adolescents is a reality, and the fact that there is the possibility to procure drugs inside the high schools, does represent a high gravity situation, and the habilitated institutions should act accordingly.

Correspondence:

Dr. Raluca Cozma

Medic primar

Institutul de Sănătate Publică Iasi

Str. V. Babes nr. 14

700465 Iasi, România

E-mail: cozmaraluca2005@yahoo.com

GUIDELINES FOR THE COMPLIANCE WITH LEGAL NORMS FOR YOUNG PEOPLE STARTING THEIR WORKING CAREER

Eugen Fülöp

Territorial Inspectorate of Labour Iasi, Romania

The moral, physical and social status of well being leads to a safer, healthier and more productive working environment. Consequently, the Territorial Inspectorate of Labour (TIL) Iasi have organized the campaign “Sure Start” dedicated to young professionals at the beginning of their careers. The results of the campaign showed that while some of the employers comply with legal norms, others, out of negligence or lack of knowledge, do not respect the norms for hiring young people and their work regime. It was very important to get the schools involved in the instructing and educating the youth on the measures to be taken against work exploitation and safety and security of work. In 2006, in collaboration with the local newspaper “Jurnalul de Iasi” TIL Iasi has presented a series of articles on cases and accidents in which young people were working without legal forms. Young people need also be protected against risks to their personal development. This is why the Aptitude File made

Abstracts

by the doctors of labour medicine goes with the required activities. The work cannot involve more effort and responsibility than accepted for their age. Young people must also know their rights to a salary, labour card, holidays, medical leaves, insurance and protection of labour. At the same time they should realize, and be prepared for an eventual reorientation in their professional career, this being a reality of the labour market. Regarding people with disabilities, unfortunately the employers do not comply with the law that requires of an enterprise with more than 75 employees that at least 4% of jobs be offered to people with disabilities. Thus, the majority of them does not work and do not have the chance of living independently.

Correspondence:

Ing. Eugen Fülöp

Inspector sef adjunct Securitate si Sanatate in Munca

Inspectoratul Teritorial de Muncă

Str. Moara de Foc, nr. 31

700520 Iasi, România

E-mail: itmiasi@rdslinck.ro