

tal 5 million employed in industry) are put at risk in Poland. Despite progress in engineering approaches for reducing noise in the work environment and in improving hearing conservations programs (both the technical and medical) the ONIHL still remains a common and costly disability.

The aim of this study is presentation of the most recent data on the incidence of ONIHL in Poland in the years 1992-2004, considered to be a base for implementing the effective prophylactic activities.

The analysed data were derived from the central state register which collects all cases of occupational diseases recognized in the country.

The highest incidence was found in such key industrial branches as coal mining, iron and steel, metallurgical and transport equipment; majority of cases were recognized in southern and western provinces, mainly in the Silesian district, known from the significant concentration of noisy enterprises.

The most affected were those workers aged 50-59 years and exposed to noise for over 20 years.

More than 36 new cases of ONIHL were identified in the years 1992-1998 annually per 100 000 employees, and with beginning 1999 the rate was significantly decreased to 20 cases per year. One may presume that it results form the set up of national program of hearing preservation introduced in 1999 with obligatory pre-employment and follow-up pure-tone audiometry, as well as with hearing screening by means of the otoacoustic emissions.

MEDICAL IMAGING STUDY OF DYSBARIC OSTEONECROSIS IN DIVERS

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Objective: To explore an ideal tool for the early diagnosis of dysbaric osteonecrosis (DON) through comparison of three different medical imaging methods, namely X-ray, computer tomography (CT) and magnetic resonance imaging (MRI). **Method:** The same examinations (X-ray, CT and MRI) of both shoulder, hip and knee joints were carried out in a study group including 140 divers, whose length of service in the diving industry was more than one year and a control group including 156 members, who were not divers. **Results:** The incidence rates of DON in X-ray, CT and MRI were 35.7%, 70.7% and 60.3% respectively with statistical significance in X2 test. Wilcoxon Signed Ranks Test showed that the founded focal lesions in CT and MRI examinations were more than that in X-ray examination, with P values of 0.000 and 0.004 respectively. Logistic Regression-Ordinal analysis showed that the diagnostic level in CT matched that in X-ray (p=0.065). Meanwhile, all the observed markers such as observed rate, founded focal lesions and diagnostic level in the study group were significantly more than that in the control group. **Conclusion:** the result suggested that CT and MRI diagnosed the focal lesions earlier. CT will become an ideal medical imaging method to diagnose DON instead of X-ray.

THE ULTRASONIC IMAGE CHARACTERISTICS OF LIVERS IN ACUTE ARSENIC, METHANOL AND DIMETHYLFORMAMIDE POISONING

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Object: To observe the ultrasonic image characteristics of the livers of the patients with acute arsenic, methanol and dimethylformamide (DMF) poisoning.

Methods: Urinary arsenic and DMF levels, methanol concentrations in the blood were monitored; serum ALT levels were also measured. HDI3000 enhanced ultrasound made in ATL company of USA was used to examine the livers and kidneys of all patients. Detectors with 2-4 MHz ultra-wide frequency convex array were applied to observed echogram in livers.

Results: (1) There were 5 patients with arsenic (aged from 27-42 yrs), 77 patients with DMF (29 F, aged from 18-25 yrs) and 42 patients with methanol poisoning (1 F, aged from 28-80 yrs). (2) Arsenic and DMF levels in urine and methanol levels in the blood were increased, respectively 1.9~15.6 umol/L, 1.39~2.03 umol/L and 0.03~23.60 mmol/L. (3) Serum ALT levels were increased in 3 patients with arsenic (60%), 19 patients with DMF (24.7%) and 11 patients with methanol poisoning (26.2%). (4) 4 cases with arsenic (80.0%), 20 cases with DMF (26.0%) and 26 cases with methanol poisoning (61.9%) were together found livers enlargement,

thickened density of light spots with diffusive changed and echo increased or localized echo reduced in the livers(F1). Some patients showed double lines on the gallbladder wall and fluid underdrain in the recess between liver and kidney(F2). In the meanwhile, It was showed kidneys enlarged, echo boosted up in aggregate system of the kidney and echo of kidney cone became lower or enlarged(F3) in the patients with acute arsenic and methanol poison but not in those with DMF poisoning.

Conclusion: Ultrasonic image characteristics of the livers and kidneys of the patients with chemical poison is quite difference from other liver diseases. It can apply to diagnosis of occupational diseases, to observe the clinical therapeutic effect and evaluate prognosis.

MESOTHELIOMA OCCURENCE IN A NON-TRADITIONALLY EXPOSING SECTOR: THE NON-ASBESTOS-TEXTILE INDUSTRY

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Mesothelioma, as an asbestos-induced disease, is well known and widely described in literature. The Lombardy Mesothelioma Registry, activated in 2000, receives more than 300 cases per year of suspected mesothelioma (pleural, peritoneal, pericardial and vaginal tunica of the testis); the average incidence rate of mesothelioma is 2.4/100,000/year [CI 95% 2.0 - 2.7].

The finding of an increasing number of cases among workers of the textile industry, classified as "unknown exposure to asbestos", upheld the suspect of presence of asbestos in that compartment. Therefore the research was based on specific information collected by technicians, maintenance personnel and other experts, moreover the industrial machinery utilized in the past was thoroughly examined; direct inspections were carried out in several workplaces that had not yet undergone significant changes with respect to the past. A large amount of asbestos had been regularly used applied to the ceilings and also to the walls of factories in order to avoid both condensation of steam and reflection of noise. In addition, asbestos had also been widely used to insulate water and steam pipes. The braking systems of most of machines also had asbestos gaskets, and on several looms some brakes operated continuously. The population in study was composed of 72 subjects, 18 males and 54 females, median age of 70.5 years. Asbestos exposure was ascribed to work in 69 cases (95.8%), 8 of whole cases had also pleural plaques. The relative legal actions were taken. The Italian National Institute of Insurance against accidents on the Workplace (INAIL) refunded 16 of the 31 closed cases (51.6%).

THE EVALUATION OF PSYCHOLOGICAL STRESS IN THE ASSESSMENT OF ABILITY FOR WORKING

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By asking for a change of his working conditions, a stressed worker first manifests his disease to the occupational physician. However physicians don't normally have the tools to assess stress as this is a disease of psychological nature. It is therefore essential to adopt an integrative approach to evaluate both the physical and psychological stress correlates.

The present study shows results collected from 1999 till now at the Department of Evaluation and Management of Occupational Stress at the San Gerardo Hospital, near Milan. Here it is active a protocol of joined physical and psychological evaluation of stress.

For now, around 100 workers have been assessed through (i) an occupational medicine visit to collect data related to physical well-being; (ii) an anamnestic questionnaires to collect data related to occupational and health anamnesis; (iii) a preliminary psychological interview to collect data related to the perceived sources of stress and (iv) the personality inventory MMPI-2 to collect data related to psychological well-being.

Preliminary analyses show a tendency to express a psychological disease through a physical symptom (malaise), i.e. a tendency to medicalization. In the 70% of cases psychological diseases are compatible with stress. We indeed find a neurotic disease with a moderate severity.

As for the perceived sources of stress, most workers report bad relationships at work, either with colleagues, bosses or customers and problems of organizational nature as shift, long working hours and work overload.

Our study and its application confirms the need of an integrative approach of both physical and psychological nature in the evaluation of occupational stress.