Poster Presentation

Respiratory

0443 SANDSTONE MINING: PERIL OF SILICOSIS

[1]Ashish Mittal*, [2]Mohit Gupta. *[1]OHS-MCS, Faridabad, Haryana, India; [2]OEHNI, New Delhi, India*

10.1136/oemed-2017-104636.367

Approximately 25 000 workers are engaged in mining of sandstone in a small district of Madhya Pradesh, in the centre of India. Most of the quarry are small, unregistered, and unorganised, mining soft stone where silica content can be as high as 70%. 88 workers of average age of 25 years, minimum age being 13 years and maximum being 70 years were examined during a screening camp. 77 male workers and 11 female workers are engaged in the process of stone breaking, cutting, cleaning, loading and unloading for an average of 8 years of work, with minimum 1 month of work to 30 year of maximum work. These workers work under precarious conditions of high silica exposure and high risk of accidents and injuries. These workers, mostly malnourished live in very unhygienic conditions. 50% of the workers have normal pulmonary function test, and rest of the 50% workers have varying degrees of abnormal pulmonary function test, the most common being mild obstruction in 15 workers. Only one female out of 11 female workers have normal pulmonary function test. Based on detailed occupational history, clinical examination and X-ray reading as per ILO standards and their pulmonary function test outcome, 19 workers were diagnosed of Silicosis, 6 of Silico-tuberculosis. These 25 workers have a varying degrees of respiratory disability based on pulmonary function test recordings, mainly 12 having 20%, 3 having 30% disability, maximum being 100% in one of the 14 year old female worker of 1 year working history in stone quarry.

Poster Presentation

Burden of Disease

0445 A REVIEW OF AUDIOMETRIC CRITERIA FOR IDENTIFYING NOISE-INDUCED HEARING LOSS AMONG WORKING ADULT POPULATIONS

[1,2]Laura Bogaert*, [1,2]Jonathan Fan, [2,1]Peter Smith, [2,1]Cameron Mustard. *[1]University of Toronto, Toronto, ON, Canada; [2]Institute for Work and Health, Toronto, ON, Canada*

10.1136/oemed-2017-104636.368

Objectives Noise-induced hearing loss (NIHL) remains one of the most prevalent occupational diseases worldwide, despite widely adopted workplace hearing conservation efforts. There are no universally accepted criteria for NIHL, hampering epidemiologic comparisons. The primary objective of this review was to characterise audiometric criteria for NIHL in occupational health literature.

Method We searched Medline, Embase, Scopus, and ProQuest's Environmental Science and Pollution Management and Biological Sciences databases for primary studies published through to March 2017 that described NIHL in working adult populations using audiometric measures. Titles and abstracts were screened against eligibility criteria. From the eligible studies, we extracted NIHL definitions, country/region, population/setting, and study purpose (e.g., surveillance, compensation adjudication).

Results Our search resulted in 1303 unique citations. After title and abstract review 461 studies were deemed potentially relevant, including 137 published in languages other than English. A total of 129 English studies were eligible and included in the final synthesis. Generally, history of work-related noise exposure and either hearing loss at high frequencies or an audiometric notch at 4 kHz constituted NIHL in the included studies. However, the specific threshold in decibels for "hearing loss" and "notch" varied across studies, as did the range of sound frequencies used to calculate pure-tone averages to indicate NIHL.

Conclusions NIHL is a major global occupational health issue of our time. Our review of occupational literature highlights the variability in definitions of NIHL. Without a common definition of NIHL, comparisons between different populations will remain a challenge and inhibit progress in this area of research.

Oral Presentation

Cancer

0446 RISK OF CANCER IN A PROSPECTIVE COHORT OF DANISH METAL WELDERS

Johnni Hansen. *Danish Cancer Society Research Centre, Copenhagen, Denmark*

10.1136/oemed-2017-104636.369

Objectives Over 110 million workers are worldwide estimated as exposed to welding fumes, including a complex mixture of nano-sized particles with a carcinogenic potential. The aim of the present study is to investigate cancer risks with a special focus on lung cancer in a large group of Danish welders.

Methods In 1986, 5866 welders completed a comprehensive questionnaire on lifetime exposures, including years with different types of welding. Information on employments after baseline (1986) was obtained from the Supplementary Pension Fund. Life-long exposure to welding particles was estimated based on a Danish job-exposure matrix based on p1200 welding specific measurements of welding particles. Based on the unique central person number assigned to all residents in Denmark welders were followed-up for cancer (1987–2015) in the nationwide Danish Cancer Registry. Similarly, information on vital status was obtained from the Central Person Register. Relative risks were estimated both by comparison with cancer incidence in the standardised general population and by internal analyses by use of Cox-regression.

Results Overall, significantly increased relative risks were seen for cancer of the pharynx (1.8; 1.0–3.0), lung (1.7; 1.4–2.2), testis (2.5; 1.2–4.9) and multiple myeloma (2.1; 1.0–4.4). Trends with increasing relative risk of lung cancer by increasing cumulative exposure to particles was observed ($p<0.01$) after adjustments for exposure to asbestos and tobacco smoking.

Conclusion This study supports that exposure to welding processed particles increases the risk for lung cancer. The increased of testicular cancer and multiple myeloma warrants further attention