

Assessment of pulmonary function of cement industry workers from West Bengal, India

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ABSTRACT

Purpose: To evaluate the basic pulmonary function parameters of cement industry workers from West Bengal. This cross-sectional study was carried out in a cement factory at Durgapur, district Burdwan on male cement industry workers and a control group of office workers.

Materials and methods: Ninety workers of different sections of cement industry and a control group of 141 office workers participated in this study. All the dynamic pulmonary function parameters were determined by spirometry. Number of years of exposure to cement dust, respiratory symptoms and smoking history if any were recorded.

Results: Nineteen percent of higher age group and 28% of lower age group workers had restrictive pulmonary diseases but smokers showed higher percentage of restrictive and combined respiratory diseases. Prevalence of chest tightness and chronic bronchitis were highest in packing, loading and storage department workers (OR=5.09 and 6.4 respectively) followed by maintenance workers of the workshop (OR=4.41 and 2.59 respectively) and then

the production department workers. Logistic regression analysis of prevalence of respiratory symptoms at the multivariate level indicated that year of smoking and dust concentration were significantly associated with chronic bronchitis but smoking habit was significantly associated with chest tightness. In addition, 46% and 20% of higher and lower age group workers from high dust zone suffered from the liver problems. Multiple regression equations of pulmonary function parameters on the basis of age, body height, year of dust exposure and duration of smoking had been established but the equations were significant for FVC, FEV₁ and FEF_{75-85%}.

Conclusions: This study demonstrated acute reduction of respiratory functions of cement industry workers from West Bengal. The work signified occupational health hazards of these cement industry workers which indicates an alarming situation if remain unchecked.

Key words: pulmonary function, cement workers, India, multiple regression, adjusted odds ratio
