Original Article

Study of respiratory status in young male automobile painters: A cross sectional study

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ABSTRACT

Background: Painters are exposed to solvent fumes and aerosols containing various concentrations of pigments, binders, fillers (talc), and chemically reactive monomers. Specific components in paint, such as isocyanates and dimethyl ethanolamine, are capable of inducing acute and chronic forms of airflow obstruction. Our study aims to establish the hypothesis that even young male painters may be at an increased risk of developing respiratory impairment. We studied the respiratory status of young male painters exposed to paints for more than 5 years and compared their pulmonary functions to a group of age- and sex-matched controls. Aims: To compare various parameters of lung functions in young male automobile spray painters with age- and sex-matched controls.

Materials and Methods: This cross sectional study was conducted in the department of physiology and medicine. Fifty-eight young male spray painters who attended the medical outpatient department of our college were selected. Fifty-two age- and sex-matched controls were also selected from subjects who attended the medical outpatient department for routine medical checkup for recruitment in the same automobile company. After history and routine examinations, the patients were subjected to pulmonary function tests. Schiller's spirovit SP-1 was used. The data were analysed using Student's *t* test.

Results: Significantly reduced forced expiratory volume in 1 s (FEV1)/slow vital capacity (SVC) ($P < 0.001$) and maximal voluntary ventilation (MVV) ($P < 0.05$) were observed among painters as compared to the controls. There was significant differences in SVC ($P < 0.001$) and FEV1 ($P < 0.05$) in grade 1, grade 2, and grade 3 exposed groups. There was no significant correlation between numbers of hours of exposure to SVC ($P = 0.420$) and FEV1 ($P = 0.377$) in painters.

Conclusions: Potential respiratory health hazard exists in automobile painters and exposure to organic solvents should be prevented in order to improve their health status.

Key words: Respiratory status, spirometry, spray painters

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