

Respiratory Occupational Health Effects of Automobile Painting Profession: A study from Palestine

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Abstract :

Background : Workers in automobile painting workshops in West Bank (Tulkarm and Nablus cities) were reported to develop respiratory problems mainly due to exposure to chemicals found in paint products. However, to date, no studies have been published about the occupational effects of this profession on respiratory health in Palestine. This study aims to determine the respiratory occupational health effects of automobile painting profession.

Methods: A case-control study consisted was conducted. Forced spirometry was used to measure the forced expiratory volume in 1 second (FEV1) and forced vital capacity (FVC), the FEV1/FVC ratios and prevalence of restrictive lung disease of the two groups were investigated and compared.

Results: Twenty two cases and 45 control groups were studied. The case and control groups have similar demographic characteristics. According to the type of lung status, 81.82% of the workers showed lung diseases, 68.18% were restrictive lung disease, 13.64% were obstructive lung disease and 18.18% workers were normal. In comparison, 57.8 % of non-workers were normal and 42.2 % showed lung diseases, 40% were restrictive lung diseases and 2.2% were obstructive lung disease.

There were 18 (26.87%) subjects who had decreased FEV1 values. Among the 22 cases, 14 (63.6%) had decreased of FEV1 value, while (8.9%) in control group had decreased FEV1 values (P-value of 0.001). On the other hand, (44.77%) had decreased FVC values (53.73%) had normal FVC values and (1.5%) had increased FVC values. Between 22 (cases) workers , 15 workers (68.2%) had decreased FVC values , 7 worker s(31.8%) had normal FVC values and 0% had increased FVC values. In comparison with workers group only 15 of the non workers group (33.3%) had decreased FVC values and (2%) had increased FVC values, 29 workers (64.4%) had non- decreased FVC values and 1 worker (2.2%) had an increased FVC values. The results show that the decrease in FVC values among workers in Automobile painting workshops in comparison with the non workers was almost significant with a P-value of 0.007. If the entire ratio population is taken together, 3% had a decreased ratio, 71.64 % had normal ratio and 25.3% with increased ratio. Among 22 cases (workers), 9% of them had decreased ratio 63.6% had normal ratio and 27.3% with increased ratio .In comparison with controls, no one of the control group had decreased ratio but 75.5% had normal ratio and 24.2% had increased ratio. The results that the association between working in Automobile painting workshops FEV1/FVC ratio is not significant with a P-value of 0.1

Conclusion: In this study, we concluded that working in automobile painting workshops and exposure to chemicals mainly Hydrocarbons and Volatile Organic Compounds (VOCs) , toxicants and irritants leads to respiratory problems (Obstructive and Restrictive diseases) .