

Assessment of Respiratory Health Indicators among Agricultural Workers Exposed to Pesticides: A Cross Sectional Study from Palestine Shuruq Murrar

Students:

Jumana Abu Rmileh
Nour kalouti
Shuruq Murrar

Supervispr :

Dr. Belal Rahhal

Abstract :

Background: Pesticides are toxic chemicals commonly used in agriculture. Insecticide, herbicide, and fungicide act to fight pests such as insects, rodents, and microbes that can cause and spread a variety of diseases that pose a serious risk to public health. No previous studies have been carried out to assess the respiratory health indicators among agricultural workers who are being continuously exposed to pesticides. Thus, this pilot study aims to determine the respiratory health indicators among workers in the field of agriculture in Jericho-Palestine, where pesticides are highly used.

Methods: A cross-sectional study was conducted in Jericho using convenience sampling method. 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 and obstructive lung diseases. Demographic characteristics were also gathered. Statistical analysis was carried out using SPSS software.

Results: A total of 98 workers were screened. Their mean age was 41.9 ± 13 years while the mean duration of exposure to agricultural chemicals was 27.8 ± 7.2 years. According to the assessment of the lung status, 92% of the workers showed lung diseases, 80% were restrictive lung disease, 12% were obstructive lung disease and 8% of the workers had normal lung function. The mean FEV1 of the sample was 2.6 ± 0.8 compared with normal reference value of 3.9 ± 0.6 ($P < 0.0001$). On the other hand, the mean FVC for the study sample was 3.2 ± 1.4 compared with the normal reference value of 5 ± 0.6 ($P < 0.0001$). The ratio of these two parameters was 85.4 ± 15.4 compared with a normal reference ratio of 79 ± 2.7 ($P < 0.001$).

Interpretation: In this study, we found that agricultural workers who were exposed to pesticides suffered from a variety of diseases that pose a serious risk to their health, mainly on the respiratory system. Training of agricultural workers on the use of proper personal protective equipment when using pesticides should be encouraged. Further studies regarding the role of occupational exposure to certain types of pesticides and associated respiratory health effects would be worthwhile.