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Occupational poisoning of pesticides to spray workers

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Pesticides are the first choice to farmers to control plant insects and diseases even though they are major pollutants to human and environment. Current study was designed to assess adverse hematological effects of pesticides on occupationally-exposed workers. Blood samples were collected from 48 adult males volunteers aged from 18-50 years old. Three groups; spray-workers (directly-exposed), farmers not involved in spray application (indirectly-exposed), and city inhabitants (control; unexposed). Blood samples were collected aseptically from each subject into K3EDTA tubes for the analysis using Sysmex KX21 hematology analyzer. Hematological results showed that blood samples of sprayworkers had significantly decreased platelets (PLT; 33%), ratio of large platelets (P-LCR%; 42%), average platelet volume (MPV; 70%), relative width of the distribution of platelets (PDW; 56%), relative content of the mixture of monocytes, basophils, and eosinophils (MXD; 100%) compared to control group. Also, blood samples of exposed group showed significantly decreased PLT (30%), P-LCR (40%), MPV (65%), and PDW (50) compared to villagers not exposed. Furthermore, levels of testosterone, triiodothyroxine, and thyroxine hormones of exposed spray farmers were significantly reduced compared with urban residents. Farmers involved in spray application have extreme chances to pesticide poisoning. Official regulations and enforced interventions that reduce overexposure of spray workers to pesticides are vital throughout Egypt.

Biography

Atef Nassar (The first author) finished his B.Sc. and M.Sc. degrees at Alexandria University, Egypt and the Ph.D. degree at McGill University, Canada. He is working as an assistant professor at Department of Plant Protection, Faculty of Agriculture, Damanhour University, Egypt. He is involved in studying the adverse effects of pesticides to humans and non-target organisms. In addition, he is trying to find new alternatives to pesticides including nano-formulations of pesticides and natural products to reduce the amount of pesticides applied into the environment.

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