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BIOLOGIC MONITORING OF PESTICIDE EXPOSURE AMONG VECTOR – CONTROL WORKERS IN FOUR REGIONS OF THE COUNTRY

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Objectives: Workers involved in vector- control programs are exposed to pesticides making them vulnerable to the acute and chronic toxic effects of these compounds. The study aims to assess pesticide exposure among vector-control workers through biologic monitoring.

Methods: This was a cross-sectional study among randomly selected workers engaged in vector control for the last 20 years from four regions of the country. Data collection included sociodemographic and occupational profile. Blood samples for red cell cholinesterase (rbc) and 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane [DDT] and its metabolites 1,1-dichloro-2,2-bis(p-chlorophenyl)ethylene [DDE] and 1,1-dichloro-2-2-bis(p-chlorophenyl)ethane [DDD] were collected.

Results: 83 males and 7 females with mean age of 49.93 years old were involved in the study. Rbc cholinesterase determination done in 74 workers showed that 19% had mild to moderate depression. The usage of organophosphates and carbamates can explain the said depression. DDT and its metabolites showed detectable levels in the blood of 81% of 59 workers. When compared with the mean levels in general population, the measured levels of DDT, DDE and DDD among the workers were elevated. On the other hand, when compared with the mean levels of workers, only DDE levels were elevated. There was no association between years of use and DDT/DDE levels. DDT has been banned by the Department of Health in 1992 for use in vector control. Hence possible exposure of the general population and workers is to DDE, a metabolite with long biologic half-life. Exposure can be through ingestion of contaminated food items. However, the detectable DDT levels in the serum of workers, especially in 2 regions would indicate that they are continuously exposed to the parent compound. The exposure could either be through the persistent presence of DDT in the environment especially in a cold environment like the Cordillera region. Also workers have been carrying on the vector-control program in areas where DDT was sprayed in the past. Repeated entries in these areas would mean repeated exposures. One other concern would be continuous use of DDT which might have been obtained through back door means or left over supplies.

Conclusions: Depression of rbc cholinesterase and detectable levels of DDT/metabolites in vector control workers indicate exposure to pesticides. There is the need to review the occupational health program for vector control workers, their health status and institute the necessary control and monitoring measures.