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Costa Rican Factory Workers Exposed to Chlorpyrifos

Rojas M; van Wendel de Joode, B; Ruepert, C; Wesseling, C

Epidemiology. 18;p S161, September 2007.

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Objective:

Chlorpyrifos is a neurotoxic organophosphate insecticide. Moderated toxicity of chlorpyrifos inhibits the acetyl cholinesterase enzyme activity. Occupational exposure to chlorpyrifos has poisoned many workers in Central America. A group of factory workers involved in the manufacturing of bags with chlorpyrifos asked SALTRA to evaluate if they were intoxicated.

To evaluate if factory workers with a chronic exposure to chlorpyrifos are intoxicated.

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Materials and Methods:

Eleven volunteer exposed workers were evaluated. Plasmatic and erythrocyte cholinesterases were determined. Four questionnaires were

used: general, acute symptoms, Q-22, and BSI. Results were compared with 16 nonexposed workers from a food factory.

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Results:

All exposed workers presented plasmatic cholinesterases below the minimum values. None of the nonexposed workers presented this situation. Exposed workers reported 3 times more symptoms of acute intoxication, 3 times more chronic neurotoxic symptoms (Q-22), and 5 more times neuropsychiatric symptoms (BSI). Differences were statistically significant. Symptoms were negatively correlated with the plasmatic cholinesterase levels.

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Conclusions:

Chronic neurotoxic symptoms and neuropsychiatric symptoms in exposed workers indicate chronic effects due to a long exposure to relatively low levels of organophosphate pesticides. Simultaneously, depressed cholinesterases and acute symptoms indicate high acute exposure and a decrease of the organism's ability to recuperate from a chronic exposure. Workers are in high risk to suffer a severe acute intoxication and neurological consequences on the long term.

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