

Cognitive disorders and occupational exposure to organophosphates : results from the PHYTONER study

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Abstrak

The involvement of organophosphate insecticides in cognitive disorders is supported by epidemiologic and biological evidence, but the effects of long-term exposure remain debated. We studied the association between organophosphate exposure and cognitive performance in vine workers from the PHYTONER study cohort in the Bordeaux area of France. Results from interviews of 614 subjects conducted at the 4-year follow-up between 2001 and 2003 were analyzed. Exposure to pesticides since 1950 was assessed with cumulative exposure scores for 34 organophosphates combining an historical crop-exposure pesticide matrix and field exposure studies, taking into account the characteristics of treatment (mixing, spraying, equipment cleaning) and reentry tasks. For the 11 organophosphates retained in the analysis, exposure (ever vs. never) was associated with low cognitive performance. No dose-effect relationship was found, but an increased risk was observed with a 50-mg increase in the cumulative score, which was greater with mevinphos (Benton Visual Retention Test: odds ratio = 3.26, 95% confidence interval: 1.54, 6.88; Trail Making Test, part A: odds ratio = 3.03, 95% confidence interval: 1.39, 6.62). Our results support the hypothesis that cognitive disorders observed in vine workers may be associated with exposure to specific organophosphates.