

Background

Previous studies suggest that exposure to pesticides increases the risk of childhood acute lymphoblastic leukaemia (ALL). The aim of this analysis was to investigate whether professional pest treatments in or around the home before birth or during childhood increased the risk of childhood ALL.

Methods

The Australian Study of Causes of Acute lymphoblastic Leukaemia in Childhood was a national population-based, multicentre case-control study of children younger than 15. Cases were eligible if diagnosed with ALL between July 2003 and December 2006. Controls were recruited by national random digit dialling between 2003 and 2006. Data from 366 cases diagnosed and 841 frequency-matched controls were analyzed using unconditional logistic regression, adjusting for study matching variables and potential confounders, to calculate odds ratios (ORs). A meta-analysis of our findings with the published findings of previous studies was also conducted.

Results

The ORs for professional pest control treatments were 1.24 (95% CI 0.86, 1.78) in the year before pregnancy, 1.37 (95% CI 0.89, 2.10) during pregnancy and 1.23 (95% CI 0.91, 1.65) for those done after the child's birth. The ORs for exposure after birth were highest when it occurred between the ages of two and three years. ORs were elevated for termite treatments before birth. ORs were higher for Pre-B than T cell ALL and for ALL of the ETV6-Runx-1 subtype than other cytogenetic subtypes. The pooled OR from a meta-analysis of this study with three previous studies of professional pest control treatments during pregnancy was 1.42 (95% CI 1.03, 1.95).

Conclusions

Our results, and those of our meta-analysis, provide some evidence of an increased risk of ALL for professional pest control treatments done during the index pregnancy and possibly in the child's early years. The analysis of pooled data from international collaborations may provide more certainty regarding these potentially important associations.