Occupational exposure to pesticides and prostate cancer: a systematic review and meta-analysis.


Abstract

Epidemiological studies on exposure to pesticides and risk of prostate cancer (PC) provide inconsistent results. We aimed to explore various potential sources of heterogeneity not previously assessed and to derive updated risk estimates from homogenous studies. We searched PubMed, Web of Science and Scopus databases for case-control and cohort studies published from 1985 to April 2014. We assessed the quality of the articles using the Newcastle-Ottawa Scale. Pooled estimates were calculated using random-effects models. Heterogeneity was explored using subset analyses and metaregression. Fifty-two studies were included in the review and 25 in the meta-analysis. No association was found between low exposure to pesticides and PC, but association was significant for high exposure, pooled OR 1.33 (1.02 to 1.63), I²=44.8%, p=0.024. Heterogeneity was explained by a number of variables including method used to assess exposure. Pooled OR was weak and non-significant for studies measuring serum pesticide level, 1.12 (0.74 to 1.50), I²=0.00%, p=0.966. For studies applying self-reporting of exposure, pooled estimate was 1.34 (0.91 to 1.77), I²=0.00%, p=0.493, while a high significant association was detected for grouped exposure assessment, 2.24 (1.36 to 3.11), I²=0.00%, p=0.955. In spite of a weak significant association detected when pooling ORs for high occupational exposure to pesticides, the magnitude of the association was related to the method of exposure assessment used by the original studies. A family history-pesticide exposure interaction was also observed for a number of pesticides.

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