

Dioxin-contaminated pesticides as risk factors for soft-tissue sarcoma in relation to tumour localization and histopathological type

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We have previously reported an association between dioxin-contaminated pesticides and soft-tissue sarcoma 1-4. In total these case-control studies encompassed 434 histopathologically confirmed cases.

Materials and methods: In a meta-analysis exposure to dioxins was evaluated by using the knowledge on contamination of phenoxyacetic acids and chlorophenols by different isomers⁵. Furthermore, the different histopathological subtypes of STS in the four studies were aggregated to evaluate if the risk pattern differs between them. The material was thereby stratified on study, age and vital status. Tumour localization among all 434 cases was also studied in relation to exposure.

Results: An increased risk for STS was associated with exposure to all dioxins, i.e., both for TCDD and dioxins other than TCDD. A dose-response effect for duration of exposure was shown with a significant trend ($p < 0.001$). The difference between histopathological subtypes regarding association to dioxins was limited.

Discussion: According to the meta-analysis not only TCDD but also other isomers were associated with an increased risk for STS. The histopathological subtype seems to be of less importance.

In forestry it is well known that a dermal contact with pesticides has been common, e.g., leakage of the knapsack-sprayer. The dermal exposure has been shown to be a major route for exposure to phenoxyacetic acids. Thus, a high exposure may have occurred on specific sites of the body. Therefore, tumour localization in relation to exposure is also interesting to investigate.

References:

1. Hardell L, Sandström A. Case-control study: soft-tissue sarcomas and exposure to phenoxyacetic acids or chlorophenols. *Br J Cancer* 1979;39:711-7.
2. Eriksson M, Hardell L, Berg NO, Möller T, Axelson O. Soft-tissue sarcomas and exposure to chemical substances: a case-referent study. *Br J Ind Med* 1981;38:27-33.
3. Hardell L, Eriksson M. The association between soft tissue sarcomas and exposure to phenoxyacetic acids: a new case-referent study. *Cancer* 1988;62:652-6.
4. Eriksson M, Hardell L, Adami HO. Exposure to dioxins as a risk factor for soft tissue sarcoma: a population-based case-control study. *J Natl Cancer Inst* 1990;82:486-90.
5. Hardell L, Eriksson M, Fredriksson M, Axelson O. Dioxin and mortality from cancer. *N Engl J Med* 1991;324:1810.