

Prevalence of Diabetes Mellitus in the Seveso (Lombardy) Cohort: Diabetes results, 2006-2014

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Abstract

Introduction. The 1976 Seveso accident caused the contamination of an area by 2,3,7,8-tetrachlorodibenzodioxin (TCDD). Three zones with decreasing soil TCDD levels were delimited: A (highest), B (high) and R (low). The cohort of residents in the contaminated zones and in a surrounding non-contaminated (non-ABR) referent area has been followed-up for mortality and cancer incidence since 1976. In Lombardy residents are classified for chronic diseases on the basis of the clinical information in several administrative databases (Banca Dati Assistito – BDA). In preliminary 2006-2008 analysis, we found a prevalence excess of DM among Zone B residents compared with non-ABR (40% in women and 28% in men); data for 2006-2011 confirmed the excess (21% women and 23% in men).

Methods. Using unique personal identifiers, we performed a deterministic record-linkage between the Seveso cohort and the local BDA database (years 2006-2014) and we studied residents in the area in 1976 performing a logistic regression to calculate prevalence odds ratios (OR) and 95% confidence intervals (CI) for polluted zones, controlling for gender and age.

Results. The linkage was 79% successful. We confirm the finding of increased DM prevalence in zone B among men (OR 1.31, 95% CI 1.12-1.53, 205 cases) and, although without statistical significance, among women (OR 1.17, 95% CI 0.98-1.39, 152 cases) even adjusting for surrogate markers for body mass index (arterial hypertension, cardiovascular diseases, hypercholesterolemia). No increased risks was found among few zone A cases.

Conclusions. The analysis adds some evidence in favour to the association between TCDD exposure and risk of diabetes (stronger among males). Some limitations must be taken

into account: BDA coverage for 2006 survivors is not complete; BDA is only available for recent years and only cohort survivors 30 years after the accident could be studied; we had proxy information on some confounders; no increased risk was found in zone A.

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