

Late Effects of Early Life Exposure to Chernobyl Fallout

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Abstract

Since 2002, the US National Cancer Institute (NCI) and the Institute of Endocrinology and Metabolism (IEM) in Kiev, Ukraine have been following a cohort of 2,582 mother-child pairs exposed to radiation from Chernobyl during pregnancy. This presentation will focus on offspring outcomes of *in utero* exposure, for cancer and non-cancer endpoints, reviewing published results and presenting new data.

Chernobyl accident releases were primarily radioiodines, in particular Iodine-131 (I-131) which concentrates in the thyroid gland. Estimates of foetal thyroid I-131 dose derived from maternal doses were developed for all cohort members. The initial research on radiation-related thyroid cancer found striking but non-significant increases based on a small number of cases detected during a screening examination in adolescence. Updated results will be presented based on an additional 10 years of follow-up

Since thyroid function may govern growth, our most recent research on the prenatally exposed cohort examines radiation dose in relation to anthropometry - both size deviations at birth and measures of growth in adolescence. The full range of outcomes of the cohort pregnancies has also been examined. The presentation will report the results of these recent studies, including a provocative finding linking fetal I-131 dose to a decrease in head circumference.

Finally, as effects of transgenerational effects are of interest as well as direct exposure in early life, a summary of progress on the NCI trio study of genetic alterations among children of exposed cleanup workers and evacuees from contaminated territories will also be presented.