

Health Effects in Emigrants to Israel from Areas Contaminated by the Chernobyl Explosion

John R. Goldsmith, Beer Sheva

A. The Program of Studies on Chernobyl Effects on exposed immigrants undertaken at the Soroka Medical Center.

The primary interest of the Soroka effort on Chernobyl is to provide evaluation, advice and assistance for the immigrants whose health may have been affected by their experience with the disaster.

Our first project was the estimation in the autumn of 1991 of the body burden of ^{137}Cs . (Results published in „Health Physics“). Next we brought back all children we could for evaluation of their thyroid function and for an examination of the thyroid gland.

We initiated a study of the psycho-social impact of the Chernobyl experience, which is now in the second study phase.

With Russian colleagues we evaluated the exposure indicators for liquidators based on the history of the time and type of exposures, and derived an „index“ of exposure to be compared to such measurements as could be located.

We examined both liquidators and children for increase in the „Clastogenic Factor“ with the generous assistance of Dr. Ingrid Emerit from Paris.

We initiated a study of other biological indicators of exposure, including chromosomal analysis and Glycophorin A.

We intend to follow-up as many exposed persons as we can identify through the facilities of the Israel Cancer Registry.

In order to strengthen the input and support for evaluation and to share our experience with other scientists and lay groups, we participated in organizing an Israeli Consortium for Studies of Health and Psycho-

social impact of the Chernobyl disaster on immigrants from the former Soviet Union.

B. Findings to date, (June 2, 1996)

I. There is an increased body burden of ^{137}Cs among recent immigrants from areas with ground level concentration of ^{137}Cs greater than 37 GBq/km², and this increase diminished with the duration of time since immigration. That is the longer the immigrant has been in Israel the less radiation remains detectable in his or her body.

II. Older adults from the more exposed areas had more hypertension by history and by measurement.

III. Symptoms commonly associated with acute radiation sickness were relatively frequent among workers who were involved in clean-up (Liquidators). Some were more frequent in residents from the more contaminated locations, but the differences were small and mostly non-significant.

IV. Bronchial asthma during the preschool ages was significantly more frequent among children who were in utero at the time of the explosion.

V. Thyroid enlargement was present in about 40% of children, not differing according to residence in an exposed location. Some nodularity by palpation was noted in 7.7% of the children from more-exposed locations compared with 5.9% in those from less exposed locations (not significant).

VI. No clinically significant alterations in thyroid function tests were found in association with exposure, but among adolescent girls, the mean TSH was higher in girls from the more exposed area than from the lesser exposed one.

VII. Post-traumatic stress disorder affects the more exposed persons more frequently and is also more frequent in those with hypertension. Its prevalence appears to be diminishing over time.

VIII. Clastogenic tests which are above background in a casual sample of liquidators, tend to show, an association with the index of exposure.

IX. Positive Clastogenic tests are also more frequent among children immigrating from areas affected by Chernobyl than among children immigrating from other areas.

X. Glycophorin tests are more frequently elevated among liquidators than in the general population in a preliminary study.

XI. One case of thyroid cancer has been found in a teen-age girl, and successfully treated.

XII. Ultrasound monitoring for thyroid enlargement and irregularity cannot be shown by us to be preferable to examination by trained physicians.