

ENVIRONMENTAL AND HOST FACTORS IN THE RISK OF THYROID CANCER (THYR-RISK)

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The overall objective of the concerted action was to bring together a multi-disciplinary group of experts from Europe to carry out complementary work and fully exploit the results of a large case-control study of thyroid cancer risk in young people in Belarus and Russia following the Chernobyl accident, which was coordinated by the International Agency for Research on Cancer with partial funding from the Euratom and INCO-Copernicus Programmes of the European Union. The specific goals of the concerted action were: to assess the effects of iodine deficiency, iodine supplementation and radiation exposure on the risk of thyroid cancer and to evaluate their relative importance and how they interact together and with radiation exposure in the observed thyroid cancer increase in Belarus and Russia.

The work carried out consisted of four major complementary work packages.

- WP1: Centralisation and systematisation of information on iodine deficiency and iodine supplementation in territories affected by the Chernobyl accident
- WP2: Critical review of the information collected and evaluation of iodine status in the territories affected by the accident
- WP3: Evaluation of the joint effects and relative importance of iodine status and radiation exposure in thyroid carcinogenesis in young people
- WP4: Evaluation of the consequences for radiation protection and iodine supplementation guidelines.

The assessment of the iodine status at the time of the Chernobyl accident and more recently relied on the collection of all the data available on the status of iodine nutrition and the measures taken in the area before the explosion, since 1986, and the present situation. Indicators of iodine deficiency considered are of two sorts: population indicators and environmental indicators.

After reviewing the collected information, the members of concerted action concluded that information on population indicators available for the study regions was not sufficient for adequate determination of the iodine status of the subjects in the epidemiological study. The most relevant information appeared to concern environmental indicators, in particular soil iodine content. A critical review of methods used in the past to determine iodine content in different soils was carried out by the members of the concerted action. The group recommended that soil and landscape maps be used to estimate soil iodine content once the relationship between soil type and iodine content and bioavailability was confirmed. A small-scale pilot study was carried out which confirmed this relationship and assignment of soil iodine content was carried out using small-(1:1 000 000) and medium-scale (1:200 000) soil and landscape maps outside of this contract. This allowed the evaluation of soil iodine content in settlements of residence of study subjects.

Stable iodine intake status for each study subject was determined for the settlement of residence at the time of the Chernobyl accident as well as an average over the period between the accident and the time of diagnosis. The median iodine content in soil appeared to be quite low in Belarus (especially in Mogilev region). In Russia, the picture was more heterogeneous across study regions. Information on individual iodine supplementation was obtained from the study questionnaire.

Analyses were carried out of the effect of iodine deficiency on the risk of thyroid cancer. The effects on thyroid cancer risk of iodine prophylaxis in the immediate post-accident period and of dietary supplements of stable iodine in subsequent years were also evaluated.

Results have been submitted for publication and are confidential until then. Recommendations for iodine prophylaxis in the case of exposure to radioactive iodine have been prepared and will be published once the results of the study are publically available.