

The present publication summarizes the results of numerous and diverse studies of thyroid cancer in children and adolescents of Ukraine affected as a result of the Chernobyl accident. We specifically have been focusing on long-term studies on reconstruction of individual thyroid doses, the relationship of thyroid cancer incidence with the age and place of residence of children at the time of the accident, clarification of changes in the structure and invasive properties of "Chernobyl" papillary thyroid carcinoma (PTC) in different age groups and in different periods after the Chernobyl accident, analysis of differences in the structure and invasive properties of radiogenic and sporadic PTC, and initial steps of the search for an association of individual molecular-genetic abnormalities with thyroid exposure dose. It is anticipated that further progress in discovery of radiation exposure markers or signatures will involve new advanced technologies, in particular, the whole genome analysis by next generation sequencing aimed at identification of possible genetic alterations unknown today which may underlie the development of radiogenic thyroid cancers.

We express a hope that this book will be useful to the readers professionally working in different fields of knowledge including radiation medicine, dosimetry, epidemiology, endocrinology, oncology, pathology, and molecular biology. The book may also be of interest to our Japanese colleagues in the analysis of health consequences of the accident at Fukushima Dai-ichi Nuclear Plant where a large-scale ultrasound thyroid screening in young population of Fukushima prefecture was initiated shortly after the disaster in March 2011.

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