

## Session 5.3

### Childhood Thyroid Cancer in Ukraine Following the Chernobyl accident

**Tronko M.<sup>1\*</sup>, Bogdanova T.<sup>1</sup> Mabuchi K.<sup>2</sup>, Hatch M.<sup>2</sup>, Likhtarev I.<sup>3</sup>,  
Bouville A.<sup>2</sup>, Oliynik V.<sup>1</sup>, Shpak V.<sup>1</sup>, Tereshchenko V.<sup>1</sup>, Brenner A.<sup>2</sup>,  
Zurnadzgy L.<sup>1</sup>, Zamotaeva G.<sup>1</sup>, Gulak L.<sup>4</sup>, Shchepotin I.<sup>4</sup>**

**<sup>1</sup>*Institute of Endocrinology and Metabolism, Kyiv, Ukraine***

**<sup>2</sup>*U.S. National Cancer Institute, Bethesda, U.S.A***

**<sup>3</sup>*Scientific Centre for Radiation Medicine, Kyiv, Ukraine***

**<sup>4</sup>*Ukrainian National Cancer Institute, Kyiv, Ukraine***

The number of thyroid cancer cases and incidence per 100,000 subjects of Ukraine aged from 0 to 14 and 15 to 18 years at the time of the Chernobyl accident has been studied for the period from 1986 to 2012.

A significant increase in thyroid cancer incidence among the exposed population of children and adolescents was observed beginning from 1990. This tendency persists for a period of 22 years (1990-2012). Incidence rate in the 6 most contaminated regions exceeded that in 21 low-contaminated regions for all periods of study. By age at surgery, peak incidences in childhood and adolescent groups were observed in 1996-1998 and 2000-2002, respectively.

Age distribution of subjects with radiogenic thyroid cancer in Ukraine for the shortest latency of tumor development (4-6 years) is characterized by realization of radiation effect in the youngest groups at the time of the accident and significantly differs from that observed in Fukushima after screening examinations.

The number of thyroid cancer cases per 1,000 study subjects of Ukrainian-American thyroid cohort study was decreasing with each subsequent screening, but after the fourth two-year cycle it also remained at a significant level: 1.5 cases per 1000 study subjects.

During the first and second cycles the number of thyroid cancer cases per 1,000 study subjects was increasing with increasing thyroid exposure doses. During third and fourth cycles of screening such relationship has not been established.

As a result of four cycles of screening examinations, 110 cohort members with thyroid cancer have been operated on during 1998-2008. Among 110 thyroid carcinomas revealed during four screenings, papillary carcinoma was predominant: 104 cases (94.5%).