Thyroid Dose at the Chernobyl-Affected Belarus Population

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Iodine radionulides caused thyroid exposure of the population who resided in contaminated territory in April - May 1986 basically due to foodstuff intake (mainly milk, dairy products and leafy vegetables) and inhalation of iodine through air.

Thyroid doses of residents of the most contaminated South areas' settlements had been estimated using radioecological model like ECOSYS which describes a transfer chain of iodine radionulides from soil through grass, leafy vegetables, milk, dairy products and inhaled air into human thyroid.

There was assessed the number of the alive affected population per 2007 out of the number of the affected population in 1986 using demographic model.

Collective thyroid dose at residents who lived in the most contaminated South areas in 1986 as a whole makes up 222216 persn*Gy per 2007, in Gomel city it makes up 30718 persn*Gy.

The contribution of the population to collective dose who were children in 1986 makes up 50 % on the average in cities and rural area while the number of them is 27 %. The average thyroid dose of the inhabitants who were children and adolescents in 1986 is 2.5 times higher than at adults in rural area, and is 3 times higher in cities. More than 26% of collective dose includes 7% of the population residing in 3 most contaminated areas; the other 74 % are distributed on rather less contaminated areas. Such dose distribution explains why morbidity of thyroid cancer at children is higher in low contaminated regions in comparison with high contaminated areas.

KEY WORDS: thyroid gland, thyroid dose, collective dose, contribution of children population to collective dose.

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