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Session 2: Thyroid effects

PERSPECTIVES OF THE USING LOW DOSES OF THYROID HORMONES FOR INCREASING ANTIOXIDANT AND REPAROGENIC POTENTIAL IN PERSONS WITH IRRADIATED THYROID GLAND (approach to the problem)

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By the estimation of the postponed consequences of the irradiation by iodine mainly thyroid cancer and hypothyroidism usually had been evaluated. Meanwhile more actual problem there is the development of the symptoms which are typical for hypothyroidism, but not accompanied with decreasing the level of thyroid hormones (TH). In such patients the decreasing of the antioxidant potential and increasing of the level aberrant lymphocytes was marked. This phenomenon probably may be explained by the development of the functional deafness of irradiated cells to TH.

On the other hand the experimental data have showed that TH increased the genome stability by inhibition of free-radical attack and stimulation repair from injuries inflicted in the course of endogenous or induced mutagenesis. Thyroxine acts as antioxidant and reparogen within the physiological concentration range (up to 10^{-12} M), being able to stimulate the repair even after the self-dependent chromosome from injuries has been completed. Potential risks of the chronic overdose at this situation is absent.

Thus the systematical investigation TH as antioxidant and reparogens and problems their practical treatment on irradiated patients is necessary.