Stochastic effects of ionizing radiation

Stochastic effects of ionizing radiation are such effects that we do not know with certainty that they will manifest themselves after exposure, they manifest themselves only **with a certain probability**. This includes an increase in the risk of cancer and hereditary diseases. For doses of ionizing radiation below 100 mSv, the dependence of the additional risk is not entirely clear (different probability models of risk habituation are assumed – linear, linear-quadratic, threshold, increased risk model), for doses above 100 mSv, the increase in risk is linearly dependent on the dose. [1]

Additional risk of cancer

From doses exceeding 100 mSv, the risk of fatal cancer increases linearly. The nominal coefficient of occurrence of fatal cancer is $5 \cdot 10^{-2} \mathrm{Sv}^{-1}$. However, this coefficient is dependent on gender and age. [1]

Additional risk of hereditary diseases

No additional risk could be demonstrated in first-generation offspring. However, the methodology of the studies conducted may be flawed, so the research is still ongoing. [1]

Links

Related articles

- Deterministic effects of ionizing radiation
- Ionizing radiation
- Radiotherapy
- Effects of ionising radiation

External links

- European Society of Radiology (https://www.myesr.org/article/1792)

References

1. HORÁKOVÁ, Ivana. *Základy radioační ochrany obecné* [lecture for subject Mimořádný specializační e-kurz – Radiační ochrana, specialization Radiační ochrana pro indikující lékaře, Radiační hygiena Institut postgraduální vzdělávání ve zdravotnictví]. Praha. 2020-04-15. Avaliable from <https://moodle.creativeconnections.cz/course/view.php?id=94>.