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Biological effects of low-dose radiation

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In the modern world, ionizing radiation (IR) plays an important role. Dramatic rise in diagnostic procedures, radioisotope's exposures scans and intervention procedures has raised a concern about long-term biological consequences from exposure to low doses of IR. Besides its unambiguous relevance to medical benefits, knowledge of the long-term health outcomes of exposure to low dose ionizing radiation is also essential for various industrial applications. There has been a growing number of scientific evidence regarding the biological effects of low-dose radiation (LDR) in recent years. The term low dose means a cumulative dose up to 100 mSv. Contrary to high dose rate irradiation, biological effects after LDR exposure are linked bipolar effect phenomena; positive as adaptive responses, radiation hormesis or hypersensitivity and negative as bystander effect, radioresistance or genomic instability. Due to these phenomena, biological effect of LDR is complex, but still incompletely understood.
The aim of our work is to provide relevant information about effects associated with biological consequences. We reviewed recent current available studies of LDR-induced effects in humans. This study is based on literature reviews method. Majority of summarized studied confirmed the mutual correlation between the biological risk and LDR (induction of γ-H2AX, formation of micronucleus or chromosomal aberrations…). Although, LDR issue still remains relatively new topic that need to be more thoroughly explored and thus a total view of the biological effects and relevant mechanism. It is quite likely, according to the information gathered that further research of LDR may lead to opportunity of individual diagnostics into the future.

Přihlásit do soutěže

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