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## IMPACT OF EXTERNAL AND INTERNAL LOW-DOSE IONISING RADIATION IN BIOCHEMICAL PARAMETERS OF MALE MICE

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Twenty six years after the accident of the Chernobyl nuclear power plant, some populations are still exposed to chronic low dose of  $^{137}\text{Cs}$ , mainly through the diet. Moreover, people can also be contaminated with low doses of external ionising radiation. The health effects of a combination of internal and external exposure to low doses of radiation are still uncertain.

The aim of this study was to evaluate acute and subacute biological effects of concomitant exposure assessing biochemical urinary parameters. We used six groups of adult male mice ( $n=20$ ). Two groups were exposed to an acute internal low dose of  $^{137}\text{Cs}$  and administrated through the drinking water at radiation doses of 4000 and 8000 Bq/Kg. The same animals were external whole body irradiated with 0.3 Gy  $\gamma$ -rays. Three other groups were exposed only to internal or external radiation. Finally, one group did not receive any radiation dose and was considered the control group. To evaluate acute and subacute effects, animals (half of each group) were euthanized at 15h and 1 week post-exposure respectively. Urine samples were collected for biochemical analysis, including the determination of isoprostane as an oxidative stress marker. Lactate dehydrogenase (LDH),  $\gamma$ -glutamyl-transferase (GGT), and N-acetyl- $\gamma$ -D-glucosaminidase (NAG) activities were modified in groups exposed to internal and external radiation, mainly after 1 week post-exposure. Moreover, isoprostane levels increased following concomitant exposure. The present results suggest that coexposure to internal and external low doses of radiation caused renal damage evidenced by biochemical alterations, and oxidative damage.

Keywords: ionising radiation, adult mice, oxidative stress, biochemical urinary parameters

**Primary author:** Dr BELLÉS MATEU, Montserrat ("Rovira i Virgili" University)

**Co-authors:** Ms LAFUENTE, Daisy ("Rovira i Virgili" University); Dr GONZALO, Sergio ("Rovira i Virgili" University); Dr LINARES, Victoria ("Rovira i Virgili" University)

**Presenter:** Dr BELLÉS MATEU, Montserrat ("Rovira i Virgili" University)

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