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[Cod. Trabalho: 562]

PÔSTER

RADIAÇÕES IONIZANTES EM BIOCÊNCIAS E SAÚDE

AN ATHYMIC MOUSE MODEL TO MIMIC COBALT-60 CUTANEOUS RADIATION INJURY

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Palavras-chave: Cobalt-60; Cutaneous Wounding; Radiotherapy

Resumo:

Cutaneous wounding from γ -irradiation is the most common complication in radiotherapy treatment, and can lead to mortality. We describe an animal model protocol, using athymic rat for Cobalt-60 cutaneous radiation injury. A protocol including dosimetry with silicon diodes and four lead bricks with 10x10x5 cm arrangement was designed to irradiate four specific clamped points on the skin of athymic mouse, at the same time in single doses, to such an extent can be protect the remainder of the body from radiation and was possible to generate a minimum BioDap. To get the measurements of dose rates on the arrangement in Panoramic Irradiator, it was used a silicon diode encased in an opaque protection for ambient light and connected to an electric cable, forming a dosing probe. The currents generated in diode sensitive volume as a function of time of exposure to gamma radiation coming from the radiator, with dose rate of 0,015 Gy/min in positions 1, 0,021 Gy/min in position 2, 0,55 Gy/min in position 3 and 1,45 Gy/min in position four. Each athymic mouse was anesthetized using Xylazine and Ketamine dilution and entered into a specifically designed tube and a small portion of skin (1 cm³) was clamped. This tube was then fixed to arrangement for 60 min, than the athymic mouse was being returned to its cage. The wound was visualized in all animals and photographed after 5 days of irradiation, with the emergence of ulceration after 9 days. No systemic or lethal sequelae occurred or visualized in any animals. Late clinical signs (after 22 days) included a wound healing though with minimal bacterial sign above ulceration. While still being a baseline study, we created a new functional preclinical animal model that can be used for new therapies and may improve radiotherapy management.