

Endocrine Dysfunction and Neoplasia in Female B6C3F1 Mice Exposed to Chronic Low Dose-rate Radiation

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Abstract

The objective of the study is to clarify the mechanism(s) by which endocrine dysfunction of the ovary, resulting from radiation exposure, disseminates to other organs, through an inter-organ network, increasing the incidence of liver neoplasms. In this first year, we established a system to prevent weight gain (obesity) in the study mice, using a feeder fitted with an automated timer. By limiting the feeding time using this feeder, weight gain was significantly prevented in B6C3F1 female mice exposed to acute high dose-rate of gamma rays. We also developed and validated a simple method for quantifying the lipid content in histopathological slide specimens of the liver stained with H&E using image analysis software. Thus, we have established the methodologies necessary for conducting the study.

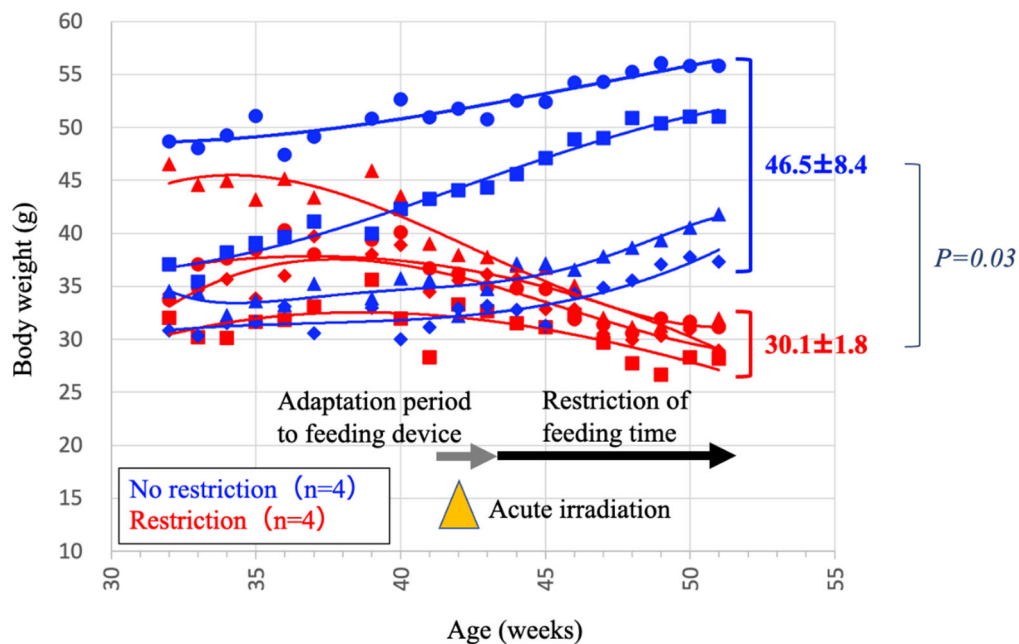


Fig. 1 Changes in the body weight of irradiated mice with (red) or without (blue) feeding restriction.

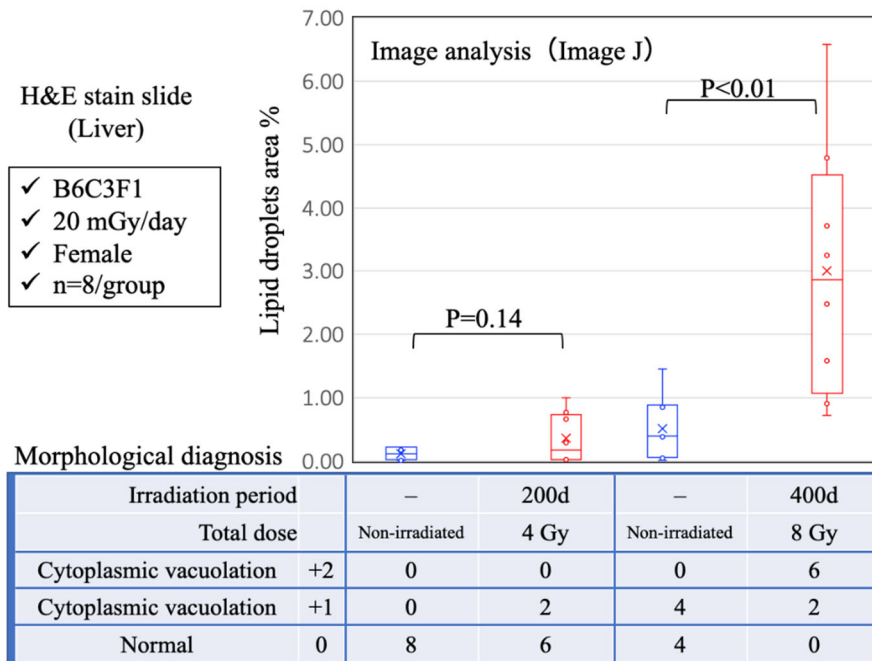


Fig. 2 Comparison between methods for evaluating lipid changes in the mouse liver.