Influence of Gestational Age at Exposure on the Prenatal Effects of Gamma-Radiation

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The objective of this investigation was to evaluate of influence of gestational age at exposure on the prenatal effects of gamma-radiation. Pregnant ICR mice were exposed to single dose of 2.0 Gy gamma-radiation at gestation days from 2.5 to 15.5 days post-coitus. The animals were sacrificed on day 18 of gestation and the fetuses were examined for mortality, growth retardation, change in head size and any other morphological abnormalities. The only demonstrable effect of irradiation during the pre-implantation period was an increase in prenatal mortality. Resorptions were maximal after exposure on day 2.5 after conception. The pre-implantation irradiated embryos which survived did not show any major fetal abnormalities. Small head, growth retardation, cleft palate, dilatation of cerebral ventricle, dilatation of renal pelvis and abnormalities of the extremities and tail were prominent after exposure during the organogenesis period, especially on day 11.5 of gestation. The result indicated that the late period of organogenesis in the mouse is a particularly sensitive phase in the development of brain, skull and extremities.