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Cytogenetic Analysis of Radiotherapeutic and Diagnostic Workers Occupationally Exposed to Radiations

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ABSTRACT The study group comprised of 12 occupationally exposed “radiotherapeutic and diagnostic workers”, working since last 12 years on an average (service duration 3 to 20 years), with 12 age and sex-matched controls not exposed to any kind of radiation and belonging to same socio-economic status as the radiation workers. Cytogenetic end points studied were CAs (Chromosomal aberrations), SCE (Sister chromatid exchange) and MN (Micronuclei). Hematological parameters were also studied. In addition, co-mutagenic/synergistic *in vitro* effects of known mutagen Mitomycin-C (MMC) on lymphocytes of these workers were evaluated. Results revealed a significant increase in dicentric ($P < 0.05$) as well as MN ($P < 0.01$) among radiation exposed workers when compared to controls. By contrast, no change in SCE frequencies and hematological parameters were observed. After *in vitro* MMC treatment CA (mainly dicentric and ring) increased significantly in lymphocytes of radiation exposed workers. Based on these observations, a preliminary indication of the study could be that long term low level radiation exposure may probably damage the genetic constitution of an individual.

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