

Effects of ionizing radiation on cardiovascular endothelial cells

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Abstract

Introduction: ionizing radiation(IR) interact with other molecules by two methods .The first one as direct method, by possessing sufficient energy during direct collision(DC) with biological molecules like DNA(as cellular data bank) causes their destruction. In the other one , as indirect method, Ionizing rays by interaction with singular or constituting atoms causes one or several electron excitement out of their orbits and consequently their ionization or being charged. Ionized atoms and Molecules by receiving flowing electrons turn into free radicals which have great tendency to bond with other biological molecules.

Methods: All animals used in this experiment on the basis of experience taking care of animals Approved by the Committee ,the protection of animals have been kept UCLA. Female mice C57BL / 6(for 10-12 weeks) tested.

Results and discussion: Ionized atoms and Molecules by receiving flowing electrons turn into free radicals which have great tendency to bond with other biological molecules .Free radicals by impact on organic molecules like DNA and formation of unusual stable structures, impair in cellular functions and consequently in organism .with its direct effect of IR ,organic molecules such as DNA damage .But what is important is the indirect effect of this radiation.

Free radicals are produced ,with effects on organic molecule especially DNA and the creation of stable unusual items such as mutations ,expression of unconventional genes ,and also disruption of cellular signals ,fluidity and transport membrane ,protein structure ,and finally effect organisms activity.

Conclusion: Direct or indirect effects of IR on cells specially coronary endothelial cells which expose to rays during diagnostics , treatment or because of exposing occupation, could cause structural or functional impairing , aging or cellular demise.

Keywords: Ionization, signal, free radicals, endothelial

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