

Age effects on radiation response: Summary of a recent symposium and future perspectives

This paper reviewed data involving variations in radiation late-effect risks with age at exposure and chronological age, including a summary of several oral presentations given in a symposium on “Age effects on radiation response” as part of the 67th Annual Meeting of the Radiation Research Society, held virtually in October 2021. Researchers from around the world gathered online to speak on the issue of health risks from radiation as they relate to aging. RERF researchers presented information on its data from the RERF's Life Span Study (LSS)¹ of survivors of the atomic bombings of Hiroshima and Nagasaki.

Few groups in the world exposed to radiation have been followed across their entire lifespan, but more than 60 years after the atomic bombings, nearly 40% of the A-bomb survivors in the study remained alive as of 2009. The follow-up of this study population into the future could provide important, new insights, because it is expected that the age-exposure patterns of excess relative risk (ERR)² and excess absolute risk (EAR)³ will become more precisely understood as the age of the A-bomb survivors continues to increase.

Notes

¹Life Span Study (LSS):

The main purpose of this study is to investigate the long-term effects of atomic bomb radiation on the cause of death and cancer incidence. At the time of the 1950 national population census in Japan, about 94,000 atomic bomb survivors were selected from among those who were confirmed to be in Hiroshima and/or Nagasaki at the time of the atomic bombings and about 27,000 who were not in city at the time. This study has tracked over many years about 120,000 members.

²Excess relative risk (ERR):

The increase or decrease of a certain health risk in an exposed group compared with a control group. An excess relative risk of 0 means that radiation exposure did not affect risk. An excess relative risk of 1 in the exposed group would indicate a rate of disease that is double the rate in the unexposed, or control, group.

³Excess absolute risk (EAR):

Indicates the difference in absolute risk (AR: total number of persons with a specific disease affected by radiation exposure, or the rate of that disease in a given population over a given period of time) between exposed and non-exposed populations.

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RERF's objective with this brief outline is to succinctly explain our research for the lay public. Much of the technical content of the original paper has been omitted. For further details about the study, please refer to the full paper published by the journal.