

Incidence of lymphoid neoplasms among atomic bomb survivors by histological subtype: 1950–1994

Lymphoma, a type of blood cancer, can be broadly classified into Hodgkin lymphoma and non-Hodgkin lymphoma, and each of these lymphoma classifications can be further divided into subtypes. Of such blood cancer cases in Japanese patients, more than 90% fall into the non-Hodgkin lymphoma category.

Evidence from previous reports about association between radiation exposure and lymphoma has been limited and inconsistent. This study recategorized in further detail lymphomas diagnosed between 1950–1994 in the Life Span Study (LSS)¹ of A-bomb survivors based on the World Health Organization (WHO) classification of histological subtypes² and investigated the association between radiation exposure and major subtypes based on statistical analysis.

Consistent with previous papers, the rate of disease among men diagnosed with non-Hodgkin lymphoma in the LSS population clearly increased depending on exposure dose, a tendency not observed among women in the LSS. As for association between the rate of disease and exposure dose, a large increase in disease rate in men was observed for precursor lymphoid neoplasms, one of several aggressive lymphoma subtypes. Little or no association between radiation dose and disease rate was observed, however, for the other major subtypes.

These data suggest the association that had been observed between radiation exposure and all lymphoma types combined is mainly related to precursor lymphoid neoplasms.

Notes

¹ Life 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. The LSS has tracked over many years about 120,000 members of the study.

² WHO classification of histological subtypes:

The World Health Organization classifies cancers according to cancer cell characteristics, using a detailed cancer classification method based on internationally accepted standards.

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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.