

- 4 Preliminary Analysis of Cancer Mortality among Radiological Technologists in relation to work history
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Cancer mortality of more than 12,000 radiological technologists in Japan has been followed since 1969 to evaluate the effect of protracted exposure to low or moderate dose of radiation. However, detail evaluation of cancer risks has not been done in relation to exposure dose or its surrogate. We preliminarily analyzed cancer risks associated with work history for approximately 5,000 technologists using Cox's proportional hazard model. Hazard ratios for all cancers combined (n = 440) were 1.39 (95%CI: 1.03–1.88) for those first worked in 1940s and 1.81 (95%CI: 1.15–2.86) for those first worked before 1940 (p for trend=0.010), compared with those first worked after 1950. Corresponding hazard ratios for leukemia (n = 16) were 2.61 (95%CI: 0.38–17.8) and 18.8 (95%CI: 1.19–298). There was no clear pattern of risks associated with age at first worked. These findings suggest that they exposed to substantially high dose of radiation in early periods, and warrants further analysis on the basis of reconstructed doses by work history.

- 5 Non-cancer Disease Mortality among Atomic Bomb Survivors, 1950–1997
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It is well known that cancer risk increases among the atomic bomb survivors. Recently, It is also suggested that non-cancer disease mortality increases with radiation dose in the Radiation Effect Research Foundation (RERF)'s Life Span Study cohort. Increasing trends are observed for diseases of the circulatory, digestive, and respiratory systems. This finding cannot be explained by misclassification of radiation-related cancer or possible confounding. Rates for those exposed to 1 Sv are elevated by about 10 %, a relative increase that is considerably smaller than that for cancer. However, because non-cancer disease deaths are much more common than cancer deaths, the absolute increase in non-cancer rates is large. The previous data did not yet clarify the shape of the dose response or age-time pattern of the non-cancer disease risk. The present report, which updates the data, tries to examine the shape of the dose response and age-time pattern of the non-cancer disease risk by considering selection effects (healthy survivor effects) and the difference between distal and proximal survivors with dose < 0.005 Sv.

- 6 Ophthalmologic study in atomic bomb survivors, preliminary analysis
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Purpose:Recent reports have indicated that late onset radiation cataract and early onset senile cataract had developed by radiation exposure at juvenile period. This study is to conduct an ophthalmologic study on A-bomb survivors who were exposed at juvenile period. Subjects: Those who were age 13 or less at the time of the bombs and those who had the previous ophthalmologic examination among AHS participants in Hiroshima and Nagasaki. Methods: Slit lamp examination, digital photograph, and classification by the Lens Opacity Classification System II. Proportional odds logistic regression analysis was conducted taking no finding group as a reference among opacity groups for nuclear color, nuclear opacity, cortical opacity, and posterior subcapsular opacity. Results: During June 2000 – January 2002, 608 persons underwent the ophthalmologic examination. Statistical significance was not observed in nuclear color and nuclear opacity, but statistical significance was observed in cortical and posterior subcapsular opacities (p < 0.01, both). It was true among newly detected cases, excluding 8 persons with posterior subcapsular opacity, detected in the previous study (p < 0.01). Conclusion: In the relationship between radiation exposure and lens findings in A-bomb survivors, a statistically significant association was observed in late onset radiation cataract and early onset senile cataract.

- 7 Risks of diabetes and HLA types among atomic-bomb survivors
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Our main aim in this study was to shed some light on the role of genetic background in the onset of diabetes in A-bomb survivors. To do this, we examined the effects of different HLA haplotypes on diabetes development in A-bomb survivors (109 diabetic patients and 792 controls). We noted a dose-dependent increase in the prevalence of diabetes in these subjects (Trend p = 0.002). The risk of the most heavily exposed (>1.5 Gy) group of survivors with certain haplotypes was significantly higher than that observed in unexposed or low-dose-exposed group, whereas there were no comparable dose-related increases in diabetes incidence in groups of survivors with other HLA class II haplotypes. These results suggest that the effects of radiation on diabetes incidence may be very different in different genetic backgrounds, and that there may be a subtype of diabetes associated with certain HLA types. We believe that a particular subgroup of younger survivors may have developed their disease in the course of an infectious or autoimmune response or by the effects of other genes linked to HLA loci.