199 Pattern of Solid Cancer Mortality Risk by Sex, Age at the Time of Bombing, and Age among A-bomb Survivors, 1950 – 95
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The Life Span Study (LSS) of the Radiation Effects Research Foundation (RERF) has served as a principal source of epidemiological data for cancer risk assessment. In this report, which has extended the study period by five years from the previous report, pattern of solid cancer risk by sex, age at the time of bombing (ATB), age, and time since exposure will be discussed.

Of about 87,000 survivors who have DS86 dose estimates, 9,354 people died of solid cancer between 1950 and 1995. Of them, 1,314 people died of solid cancer during the extended study period. The excess relative risk (ERR) of solid cancer is higher among females than males. Also, the younger the age ATB, the higher the ERR of solid cancer. As for age, the ERR is constant among those exposed as adults. That is, the excess absolute risk (EAR) of solid cancer has increased with time in proportion to age-specific increase in the background rate. As for those exposed as children, the ERR was high in the early period, and subsequently decreased with time and has been plateauing at a level somewhat higher than that seen for those exposed as adults. The current study also indicates that the younger the age ATB, the higher the EAR.

200 Genetic instability in lymphocytes and bone marrow cells from healthy atomic bomb survivors
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α,γ-rays irradiated human lymphocytes and bone marrow cells induced genetic instability after several passages post irradiation. It is not still known that genetic instability is preserved in lymphocytes and bone marrow cells from healthy atomic bomb survivors. Chromatid type aberrations and micronucleus were suitable index for detecting genetic instability. The incidence of micronucleus and spontaneous chromosome aberrations such as chromatid type aberrations in healthy 55 heavily exposed atomic bomb survivors were 1.5-4 times higher than those of age matched non-exposed persons. B-cell lines established from four heavily exposed atomic bomb survivors had also higher spontaneous chromosome aberrations and minisatellite instability. Serial observation of lymphocytes in a heavily exposed atomic bomb survivors who developed colon cancer showed increased genetic instability. Further study is necessarily to resolve the mechanism why genetic instability is persisted in irradiated cells and how the genetic instability relates to develop cancer.

201 Risk analysis on mortality (1968 - 1997) for some sites of malignant neoplasms among atomic bomb survivors in Hiroshima Prefecture.
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We have examined cancer mortality risk between 1968 and 1997 among the total 51,532 (Female 30,305) atomic bomb survivors, in Hiroshima Prefecture, registered at Research Institute for Radiation Biology and Medicine (RIRBM), Hiroshima University. The control groups are the survivors who have estimated dose less than 5 mSv. For the dose evaluation, we used ABS93D developed at RIRBM. We assumed that the RBE of neutron is one and the dose over 6 Sv was assigned to just 6 Sv. In this analysis, we examined leukemia and the cancer of stomach, lung, breast and colon. We used Poisson regression to estimate excess relative risks (ERR).

Among the results obtained, a marked phenomenon was observed at the female breast cancer. In the former study, we observed that the ERR of breast cancer mortality gradually increased until 1992 and the value of the ERR for the study period between 1988 and 1992 was 7.1. However, we observed that the ERR for the period between 1993 and 1997 decreased suddenly and that the ERR was 0.9, as the number of deaths increased in the control group.