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New findings from Nagasaki-Hiroshima study

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Researchers from the Radiation Effects Research Foundation (RERF) at Hiroshima reported this year in *Circulation journal*, the official publication of the Japanese Circulation Society, a new finding, that men with Brugada-like electrocardiogram (ECG) have higher risk of prostate cancer. (Brugada syndrome is an inherited heart disease that causes the ventricles or bottom chambers of the heart to beat so fast that they can prevent blood circulation. These patients have typical ECGs. The syndrome is named after the Brugada brothers who wrote about it in 1992).

The researchers intuitively knew that elevated levels of plasma testosterone are implicated, as the syndrome occurred more frequently in males; high levels of the hormone also probably led to the development of prostate cancer.

They identified 34 Brugada-like ECG cases among 2,681 male A-bomb survivors who had at least one medical examination in two years between July 1958 and December 1999 in Nagasaki. They looked for the incidence of prostate cancer among these survivors from July 1958 through December 2004.

They found prostate cancer among 11.8 per cent of those who had Brugada-like ECG; among others only two per cent (had it. With age adjustment, they found that the patients with Brugada-like ECG had higher risk for prostate cancer. The risk factor continued to remain significant when they adjusted the data for smoking habit and radiation exposure.

RERF scientists cautioned that persons, especially elderly, with Brugada-like ECG, should be regularly examined for prostate cancer.

It is instructive to review some of the recent publications from RERF, when it is observing the 64th anniversary of the atomic bombing at Hiroshima and Nagasaki. The epidemiological study of the health and longevity on a population of more than 120,000 individuals for over 50 years, carried out at the RERF is unique. It will not be complete for many more years. Nearly 40 per cent of all A-bomb survivors are still alive; the data maintained at RERF are openly available to any researcher.

D.B. Richardson, University of North Carolina, U.S., and other researchers found that deaths due to lymphomas and non-Hodgkin's lymphomas (both these are forms of blood cancer) increased with increase in radiation dose among 20,940 men in the Life Span Study (LSS) group at RERF and 15,264 male nuclear weapon workers who were hired at the Savannah River Site in South Carolina between 1950 and 1986.

The researchers noted in the *American Journal of Epidemiology* this year that the increase occurred more than 35 years after exposure in both groups.

In a review in the January 2008 issue of the *International Journal of Radiation Biology*, RERF researchers claimed that irradiation at the time of bombing has damaged the immune systems of A-bomb survivors.

Though the survivors' immune system repaired and regenerated, significant residual injury persists, as seen in later studies. The researchers demonstrated wearing out in the functioning of the cells known to be responsible for immune response, decrease in the populations of such cells and increase in levels of cytokines in blood indicating the presence of inflammation.

Public need not lose sleep over these findings. The results may not change the radiation risk estimates recommended by the International Commission on Radiological Protection (ICRP). ICRP arrived at the risk estimates based on long term study of large populations (particularly A-bomb survivors). It has already included the this extra risk, if any, in its earlier recommendations.

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