

Misclassification of primary liver cancer in the Life Span Study of atomic bomb survivors

It is sometimes difficult to correctly diagnose cases of primary liver cancer (cancer that originated in the liver), because of their clinical characteristics. For example, some tumors are metastatic cancers from other organs, and some primary liver cancers are not detected in cases for whom other liver diseases, such as chronic hepatitis or cirrhosis, are also present. For such cases, the death certificate might indicate an incorrect diagnosis. This situation is called “misclassification.”

This study examined the potential impact of such death-certificate misclassifications on estimation of radiation risk for primary liver cancer in the Life Span Study* of atomic bomb survivors.

This study used data that compared cause of death in death certificates with cause of death based on pathology examination during the period 1958–1987. Based on that comparison, we carried out simulations to estimate how many misclassified liver cancer diagnoses existed in cases in 1988 and thereafter. In this way, we were able to analyze liver cancer risk throughout the period 1958–2009.

Based on hypothetical data without diagnostic misclassification, it was found that the radiation-related risk of liver cancer could be 13-30% lower than that based on data with misclassification. In recent years, it is thought that liver cancer cases have been more precisely diagnosed than in the past, so that analyses based on updated data are desired.

*** Life Span Study**

The main purpose 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 about 120,000 subjects.

doi. 10.1002/ijc.32887

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.