HEALTH EFFECTS

Bomb test study: No difference in cancer rates

A study by the Institute of Medicine has found that cancer rates among veterans of bomb tests are not statistically significant.

NEARLY 200 000 SOLDIERS, sailors, airmen, and marines witnessed atmospheric nuclear tests during the 1950s. Some of them have claimed that the resulting radiation exposures they received had caused illnesses. Scientists have had difficulty finding reliable data to determine if, and to what extent, those veterans may have been harmed. A new report, however, has determined that overall death rates and total cancer deaths for these veterans were not different from such statistics for other veterans not involved in the tests.

"The Five Series Study: Mortality of Military Participants in U.S. Nuclear Weapons Tests," carried out by the Institute of Medicine (IOM) of the National Academies, reviewed the causes and rates of death of a group of 70 000 veterans who participated in at least one of five groups of atmospheric nuclear tests chosen for examination. These servicemen were present at tests conducted in the Nevada desert or in the South Pacific; approximately 30 percent have since died.

The researchers at the Medical Follow-up Agency of the IOM looked at whether participant death rates were higher than those of a comparison group of nearly 65 000 military personnel serving at the same time but not involved in the tests. They did not examine differences in nonfatal disease or injury. By beginning with the most complete lists of participants to date, identifying a comparable group of servicemen who did not participate in nuclear bomb blasts, and tracking death certificates through various sources, the researchers were able to conclude that there is no difference between the two groups in overall death rates or in total deaths from cancer.

The researchers also investigated specific causes of death. Participants in the nuclear tests had a 14 percent higher death rate from leukemia than those in the comparison group. But the study report points out that this difference is not statistically significant, meaning that the results may be due to chance.

Because leukemia was originally singled out as a primary target for investigation, the researchers also looked at subcategories of participants. For example, land-based participants—those in the Nevada desert—had a death rate from leukemia that was 50 percent higher than military personnel in similar units who did not take part in atomic tests. Sea-based test participants in the South Pacific, however, did not differ from their comparison group in leukemia deaths.

The leukemia findings are consistent with those of other studies of atomic test participants, the study group said. That is, the handful of other studies conducted have found slightly increased rates of leukemia.

The study report also pointed out some unanticipated results regarding two other kinds of cancer—prostate and nasal. Deaths from prostate cancer were 20 percent higher among test participants than the comparison group, and even higher for nasal cancer. The prostate cancer findings have not been consistently seen in other studies of people exposed to radiation and are difficult to interpret. The nasal cancer finding is even harder to interpret, according to the researchers, in part because this is the first study of atomic test participants to look specifically for that cause of death. To date, nasal cancer has not been among the cancers considered to be caused by radiation.

The IOM researchers lacked crucial data on the radiation dose each individual received. At the time of the tests, dose data were not being collected specifically for medical research, and dose measurement and records maintenance were incomplete and inconsistent. In recent decades, the federal government has used the available information to reconstruct doses to address veterans' claims for compensation. After a review of available data, the IOM did not use the dose information, finding it unsuitable for research of this kind.

This latest report supersedes an IOM report published in 1985. Several years after completion of the first study, substantial inaccuracies were discovered in the data provided to the researchers. Not all the veterans listed as test participants had actually been present at nuclear tests, while some who were present were omitted. The new study uses corrected and validated participant lists, as well as an enhanced study design. The IOM also assembled a volunteer panel of experts in the fields of biostatistics, epidemiology, radiation effects, and archival sources to advise the research staff in its work.

The study was funded by the Defense Threat Reduction Agency of the U.S. Department of Defense. Copies were to be available to the public in November from the National Academy Press, phone 800/624-6242; Web site <books.nap.edu/catalog/9697.html>. NN