

Radiation exposure and longitudinal changes in peripheral monocytes over 50 years: The Adult Health Study of atomic-bomb survivors

One of the late effects (appearing several decades after radiation exposure) seen in atomic bomb survivors is mild inflammation^{*1} in the body. Such mild inflammation is known to occur with aging, but what cells and molecules are involved in radiation-associated inflammation is unclear.

This study used long-term peripheral blood^{*2} test data from about 14,000 participants in the RERF Adult Health Study to examine the relationship between radiation exposure and the numbers and ratios of certain types of white blood cells (lymphocytes, neutrophils and monocytes^{*3}).

The research found a relationship in which the greater the radiation dose was, the greater the number and ratio of monocytes were. From this result, it can be assumed that the increase in peripheral blood monocytes following radiation exposure is related to the progression of inflammation.

^{*1}Inflammation:

A reaction that occurs with the involvement of various body fluid components, white blood cells, and so on aimed at removing abnormalities in the body. Prolonged inflammatory reactions may damage living tissue.

^{*2}Peripheral blood:

Circulating blood that can be taken from a blood vessel in the arm. The term is used to distinguish this type of blood from the blood stored in bone marrow, the spleen, the liver, and so on.

^{*3}Neutrophils and monocytes:

These leukocytes function to decompose foreign substances such as bacteria and viruses (phagocytosis).

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.