
Medical Preparedness for Radiation Emergency in Japan

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Introduction

Twenty-three Japanese fishermen saw a huge red light and heard a detonation sound on a fishing boat, the 5th "Fukuryu-maru" (Lucky Dragon). Early in the morning of March 1 in 1954, they were exposed to a thermo-nuclear test explosion at Bikini Atoll on the Pacific Ocean and suffered from acute radiation injuries. Five years later from the explosion, the National Institute of Radiological Sciences (NIRS) was established in Chiba, Japan for 1) researches on the mechanisms of radiation injury, and its diagnosis and treatment, 2) the medical application of radiation and radioactive isotopes, and 3) training of personnel in the fields of radiation protection, diagnosis, treatment of radiation injury, and medical application of radiation and isotopes. Since then, NIRS has been performing follow-up studies of the exposed fishermen at Bikini Atoll. Accidents of radiation exposure or contamination with radionuclides usually occur in nuclear facilities. In Japan, the utilities running such facilities are responsible for the prevention of accidents and the mitigation of radiological consequences to the outside of the plants, and government is responsible for exposures of public surrounding the plants; medical measures for radiation emergency have been mainly prepared for protection of the public. Today, however, nuclear power plants, devices, or locations whereby an individual could be exposed to radioactive materials are not rare. On the other hand, the idea that radiation-accidents rarely occur in nuclear facilities led us to have the common concept that systematic and nationwide medical preparedness for radiation emergency is not necessary. Indeed, our institute experienced for almost 40 years only one accident of acute radiation injury involving 6 young men exposed to an iridium source for industrial nondestructive examination. However, the disaster at the Chernobyl nuclear power facility in 1986 and the Great Hanshin-Awaji Earthquake, Japan in 1995 have made us to reconsider the plan for medical preparedness for radiation emergency. This paper outlines the new nationwide system for medical preparedness in radiation accident of Japan.

Regal systems

In 1961 the Disaster Countermeasures Basic Act was established. This act aims a comprehensive and systemic administration for disaster prevention by defining the obligations of national and local governments and by making the general basic plan. This act also prescribed Central Disaster Prevention Council (CDPC) in the prime minister's office and CDPC issued Basic Plan for Disaster Prevention. After the nuclear accident of Three Mile Island (TMI) in 1979, CDPC reinforced the emergency preparedness