

Summary

A Questionnaire about Radiation Safety Management of the Draining-Water System at Nuclear Medicine Facilities

Kazuya SHIZUKUISHI, Hiroshi WATANABE, Hiroto NARITA, Shinichi KANAYA, Kazumi KOBAYASHI, Tetsuo YAMAMOTO, Masaru TSUKADA, Tetsuo IWANAGA, Shuji IKEBUCHI, Keiji KUSAMA, Mamoru TANAKA, Norio NAMIKI, Youko FUJIMURA, Akiko HORIKOSHI, Tomio INOUE and Kiyoko KUSAKABE

A Working Group of Ministry of Health, Labour and Welfare for Study about Fitness Management of Medical Radioactive Waste

We conducted a questionnaire survey about radiation-safety management condition in Japanese nuclear medicine facilities to make materials of proposition for more reasonable management of medical radioactive waste. We distributed a questionnaire to institutions equipped with Nuclear Medicine facilities. Of 1,125 institutions, 642 institutes (52.8%) returned effective answers. The questionnaire covered the following areas: 1) scale of an institution, 2) presence of enforcement of radiotherapy, 3) system of a tank, 4) size and number of each tank, 5) a form of draining-water system, 6) a displacement in a radioactive rays management area, 7) a measurement method of the concentration of medical radioactive waste in draining water system, 8) planned and used quantity of radioisotopes for medical examination and treatment, 9) an average displacement of hospital for one month.

In most institutions, a ratio of dose limitation of radioisotope in draining-water system was less than 1.0, defined as an upper limitation in ordinance. In

499 hospitals without facilities of hospitalization for unsealed radioisotope therapy, 473 hospitals reported that sum of ratios of dose limits in a draining-water system was less than 1.0. It was calculated by used dose of radioisotope and monthly displacement from hospital, on the premise that all used radioisotope entered in the general draining-water system.

When a drainage including radioactivity from a controlled area join with that from other area before it flows out of a institution, it may be diluted and its radioactive concentration should be less than its upper limitation defined in the rule.

Especially, in all institutions with a monthly displacement of more than 25,000 m³, the sum of ratio of the concentration of each radionuclide to the concentration limit dose calculated by used dose of radioisotope, indicated less than 1.0.

Key words: Questionnaire survey, Radiation safety management, Medical radioactive waste, Draining-water system.