

Radiation Protection in Veterinary Nuclear Medicine -Part2-
~ An Estimation of External Radiation Exposure to a Veterinarian,
an Animal Owner, and General Public ~

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Abstract

This study was performed in order to establish a safely guideline for using radioisotopes in the field of veterinary nuclear medicine in Japan. Well often used radionuclides (F-18 and Tc-99m) were employed for evaluating the external radiation exposures to veterinarians, animal owners, and general public. The human external radiation exposures from radiation sources (phantom) in various situations were considered by comparing the results of computer simulation with the actually measured exposure. The computer simulation was performed by using macro program with Microsoft VBA. The comparison between the results of actual dose and simulation, these were well corresponded. It is considered that this system can be used for the evaluation of human external exposures. Though it was only a few example under the limited conditions, the results were below the dosage limit of established radiation exposure (50 mSv/yr or 100 mSv/5 yrs for occupational personnel, and 1 mSv/yr for the general public). The authors consider these radiation exposures would cause no significant issue by starting the veterinary nuclear medicine in Japan. The applicable condition of the radiopharmaceutical agent with the feasibility will be obtained by considering the distribution characteristics of the radiopharmaceuticals in the body, and its excretion out of the body. The safety guideline to perform veterinary nuclear medicine in Japan will be established by further application of this type of research.