

Analysis of radiation safety management status of medical linear accelerator facilities in domestic

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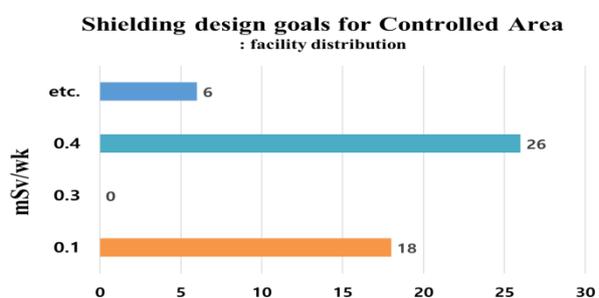
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Radiation exposure is an issue that cannot be ignored in the process of using radiation. It is important to judge the safety of not only patients but also radiation workers such as medical staff and the suitability of shielding facilities to minimize medical exposure. As the use of IMRT increases rapidly, the treatment paradigm is changing, and we would like to determine the variability in IMRT factor settings between institutions. We proceeded survey the current status of Korea in relation to the radiation safety management and shielding design of facilities using medical linear accelerators(linac). Survey was for 50 institutions where the department of radiation oncology is established. The contents of the questionnaire were as follows : status and period of use of linac, rate of IMRT, facility structure, path of obtaining radiation safety management information, current shielding status, path of obtaining information of IMRT factor, allowable dose per week, space dose rate measurement cycle, survey Meter calibration period, whether or not time-Averaged Dose-equivalent Rate (TADR) and instantaneous dose-equivalent rate(IDR) are applied. As for the IMRT factor value used, 75% used '5', and some hospitals used '7' and '16'. And 47% of respondents answered that obtained information on the IMRT factor from 'radiation shielding companies', 42% were 'international nuclear/radiation related organizations'. In addition, it is confirmed that the permissible dose per week, which is the shielding design target value, is applied differently for each institution as shown in Figures 1 and 2 below. In Korea, some of places, a detailed procedures for shielding design and safety regulations for facilities using medical linac are not clear for consideration of IMRT, and they are applied differently for each institution. Through this survey, the current status of shielding and safety management for each institution was identified, and it is believed to be the basis for establishing relevant regulations in the future.



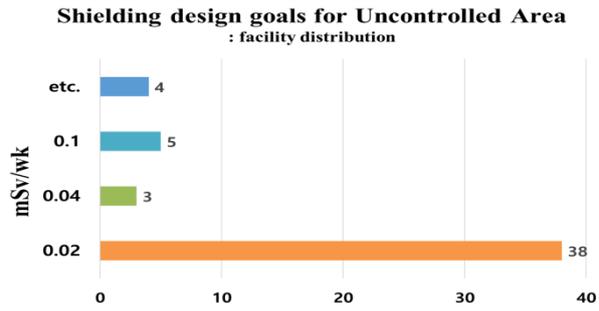


Figure 1. Facility distribution: Shielding design goals for Controlled area

Figure 2. Facility distribution: Shielding design goals for Uncontrolled area

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