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Calculation tool for iodine 131 biodistribution depending on the aerosol size distribution

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In 2019, the Nuclear Regulation Authority (NRA) in Japan designated the National Institutes for Quantum and Radiological Sciences and Technology (QST) as a Core Center for coordinating and guiding four Advanced Radiation Emergency Medical Support Centers in Japan. If a radiation accident occurs in Japan, QST will be the last port of call offering treatment to exposed people.

Radiation damage to tissues depends on radiation exposure levels. Therefore we have studied accurate estimations of radiation exposure levels so far. Recently, we developed a tool that can calculate the respiratory tract deposition of radionuclides on the basis of polydisperse particle size distribution [1]. As a next step, there is a need for a new calculation tool for the biodistribution of radionuclides because some parts of radionuclides deposited in the respiratory tract are absorbed into the body. We have been trying to develop tools that can calculate the biodistribution of radionuclides in the body lately. In this study, a calculation tool for iodine 131 biodistribution depending on aerosol size distribution developed as our activity is reported.

References

[1]. Iwaoka, K., et al., Radiation Protection Dosimetry 2019, 184, 388-390

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