Topic:

Population Dose From Medical Radiation Applications in The Netherlands

Doreth VALK*, Pauline GOEMANS, Ischa DE WAARD SCHALKX and Harmen BIJWAARD
Centre for Environmental Safety and Security, National Institute for Public Health and the Environment, Netherlands
doreth.valk@rivm.nl

Purpose: All the European member states have to collect data on patient dose from medical diagnostic imaging. This information contributes to making conscious choices in medical practice, taking into account the risks and benefits of the use of radiation. The Netherlands collects this information on a yearly base to show the development in medical radiation exposure.

Materials & Methods: This study was held among all the Dutch hospitals and institutions that use medical radiation applications (N=131). Information about the amount of diagnostic imaging examinations was gathered with a yearly online questionnaire. The effective patient dose per examination was based on former national patient dose studies. The effective dose per caput was calculated by combining the amount of examinations with the dose per examination.

Results: In 2014, the mean effective dose per caput in the Netherlands due to medical diagnostic imaging was 1 mSv. This can be divided in four categories: CT examinations, radiology examinations, nuclear medicine and diagnostic imaging outside the hospital. The category that contributes the most is CT-examinations with 0.59 mSv. Among CT examinations, the largest contribution is of CT-Abdomen. Within radiology, angiography has the highest effective dose per caput, 0.11 mSv, due to the high dose per examination.

Conclusions: The mean radiation dose per caput due to medical radiation exposure in the Netherlands has increased per year from 0.52 mSv in 2002 to 1 mSv in 2014. The main cause of the increase in dose is the increasing numbers of CT examinations. However, a smaller increase is seen since 2010.

Key words: Population Dose, Medical Radiation Exposure, Diagnostic Imaging