Daily Practice Aspects in Nuclear Medicine Aiming Dose Reduction for Patients

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Dose reduction and optimization in Nuclear Medicine and in all diagnostic procedure is a highly discussed topic in the entire world. Medical and physic science literature is increasing year by year on the topic. Following a high push from government and public opinion, many institution are devoting funds and energy to improve daily practice in diagnostic procedure not only to obtain better images, but also to reduce patients and staff exposition to ionising radiations.

EANM is a world leading societies in Nuclear Medicine and put many efforts on this topic. The idea is not only to develop guidelines on how to reduce patient exposition in Nuclear Medicine, but also to improve accuracy and appropriatness of diagnostic methods, to compete other diagnostic tools that offers less patient exposition to radiations.

Particular attention must be paid to pediatric patients, on which many resources has been invested for research in projects like EANM Peddose, with interesting results and real changes in clinical applications of principles.

This lecture will overview literature, research projects and guidelines on the topic, trying to focus on both principles of dose reduction and their application in a clinical enviroment.

It will also consider Nuclear Medicine Technologists involvement in Dose Optimization and discuss role and possibility of this working category in daily practice.

It is not meant as only a lesson but also a confrontation between different national realities and problems. Questions are welcome and could lead to further research on this fundamental topic.

Further reading:

1. Results of the EU-project peddose.net: Dosimetry and health effects of diagnostic applications of radiopharmaceuticals; Uta Eberlein1 et al. J Nucl Med. 2012; 53 (Supplement 1):1506
2. An international multi-center comparison of [18F]FDG injection protocols and radioactive dose administered to patients undergoing [18F]FDG-PET examinations; A. Del Sole et al; J Nucl Med. 2013; 54 (Supplement 2):372
3. Subjective Perception of Radiation Risk; Lutz S. Freudenberg et al; Nucl Med December 1, 2011 vol. 52 no. Supplement 2 29S-35S
4. Paediatric radiopharmaceutical administration: harmonizationof the 2007 EANM paediatric dosage card (version 1.5.2008) and the 2010 North American consensus guidelines; Michael Lassmann et al; Eur J Nucl Med Mol Imaging (2014) 41:1036–1041