

Learn & Improve Professional Skills (LIPS) Track – Session 12

Radiation Protection + Physics Committee

Tuesday, October 18, 16:45-18:15

Session Title

CT Optimization in Hybrid Imaging

Chairpersons

Jens Kurth (Rostock, Germany)

Ana-Denise Bacelar (Teddington, United Kingdom)

Programme

16:45 - 17:10 **Tim van den Wyngaert** (Edegem, Belgium): Clinical Application of Auxiliary CT in Hybrid Imaging - More than Attenuation Correction and Co-Registration

17:10 - 17:35 **Klaus Bacher** (Ghent, Belgium): CTDI, DLP, SSDE & Co - How to Estimate and Optimize Patient Dose in Computed Tomography

17:35 - 17:55 **Maria Burniston** (London, United Kingdom): Protocol Optimization of Auxiliary CT in Hybrid Imaging

17:55 – 18:15 **Elena Prieto** (Navarra, Spain): Practical Aspects of Radiation Protection When Using Hybrid Modalities

Educational Objectives

1. Teach the importance of CT in hybrid imaging and the additional clinical benefits that can be gained from CT
2. Teach basic concepts of dose estimation in computer tomography (CT)
3. Understand the importance and concepts of CT protocol optimization for better clinical use of CT in hybrid imaging while minimizing patient dose

Summary

Nowadays, it is impossible to imagine nuclear medicine and modern hybrid imaging with PET/CT and SPECT/CT without the use of computer tomography (CT). In addition to the possibility of attenuation correction, it opens up a number of other opportunities to improve the informative value of molecular imaging. On the other hand, the use of CT leads to an increased radiation exposure of the patient. According to the ALARA principle, this should be as low as possible. It is therefore the task of physicians, medical physicists and technologists to optimize the CT protocols used with regard to clinical issues and patient dose. The session will give an overview of the clinical possibilities of CT in hybrid imaging and clinicians' requirements will be demonstrated. Based on this, it will be shown how the CT component can be optimized in this respect. For this purpose, the basic concepts of dose assessment in CT will be presented, their interpretation will be demonstrated and finally it will be shown how these tools can be used to estimate and minimize the dose to the patients. Finally, practical aspects of radiation protection and dose reduction in CT use will be discussed (e. g. dose modulation, radiation protection devices, etc.). Completing this session, participants will understand the basic concepts of radiation protection in CT, they be able to estimate patient dose from CT and they know methods to optimize CT protocols depending on clinical needs.

Key Words

PET/CT, SPECT/CT, Hybrid Imaging, CT Dose Optimization, Radiation Protection