Learn & Improve Professional Skills Session 10
Physics and Dosimetry Committee
Tuesday, October 22, 09:45 - 11:15

Session Title
More You Need to Know About Kinetic Modelling

Chairpersons
Anne Larsson Strömvall (Umeå, Sweden)
Silvano Gnesin (Lausanne, Switzerland)

Programme

09:45 - 10:10 **Mark Lubberink** (Uppsala, Sweden): Fundamentals of kinetic modelling

10:10 - 10:30 **Sandeep Golla** (Amsterdam, Netherlands): Use of kinetic modelling in neuroimaging

10:30 - 10:55 **Antonia Dimitrakopoulou-Strauss** (Heidelberg, Germany): Use of kinetic modelling in oncological imaging

10:55 - 11:15 **Elham Yousefzadeh-Nowshahr** (Ulm, Germany): Use of kinetic modelling in dosimetry

Educational Objectives
1. To understand the theory behind kinetic modelling including different compartment models, arterial input functions and parametric imaging.
2. To get an understanding of the current status of kinetic modelling in the fields of neuroimaging, oncological imaging and dosimetry.
3. From different PET and SPECT case reports get an understanding of how the use of kinetic modelling can add additional important information and improve diagnostics and treatment of patients.

Summary
In nuclear medicine, kinetic parameters can be derived by analysing time-activity curves from PET or SPECT-scans. Kinetic modelling has mainly been used for research applications, but with today's scanner and software development, the method has become more readily available for clinical applications. There is also an increase in radionuclide therapies, such as Lu-177 PSMA, which has emphasized the importance of personalised dosimetry. In this session, use of kinetic modelling in neuroimaging, oncological imaging and dosimetry will be presented. Current status and possible future applications will be discussed.

Key Words
Compartment model; arterial input function; parametric imaging; segmentation; graphical analysis; organs at risk