Special Symposium 3

Dosimetry Committee

Monday, October 6, 09:45 – 11:15

Session Title

Challenges in Dosimetry of Alpha Emitters

Chairpersons

Marta Cremonesi (Milan, Italy)
Pablo Mínguez Gabiña (Barakaldo, Spain)

Programme

09:45 – 10:05 **Ana Denis-Bacelar** (London, United Kingdom): Need of validated primary and secondary standards to calibrate alpha emitters in radionuclide calibrators

10:05 – 10:30 **Tobias Ryden** (Gothenburg, Sweden): Feasibility of SPECT–based dosimetry of alpha emitters

10:30 – 10:55 **Astrid Delker** (Munich, Germany): How to address daughters' redistribution in dosimetry of alpha emitters

10:55 – 11:15 **Pablo Mínguez Gabiña** (Barakaldo, Spain): Small scale dosimetry and microdosimetry to better understand treatment outcomes

Educational Objectives

1. Address the lack of validated primary and secondary standards associated with the measurement of alpha emitters in radionuclide calibrators
2. Address the feasibility of SPECT–based dosimetry of alpha emitters
3. Address the trouble of daughters' redistribution in dosimetry of alpha emitters
4. Address the cases in which small scale dosimetry or microdosimetry are necessary to better understand treatment effect

Summary

The use of alpha-particles in the development of new radiopharmaceuticals can increase the treatment options for cancer patients. Currently, Ra-223 is the only alpha-emitter approved by EMA for the treatment of metastatic castration resistant prostate cancer, but there are many other alpha-emitters used in radiopharmaceuticals under research (e.g. At-211 or Ac-225). In order to optimize the therapeutic potential of those radiopharmaceuticals, dosimetry is a valuable tool. In this session, some issues related to dosimetry with alpha emitters that should be known before starting with it are addressed. These issues are the lack of validated primary and secondary standards associated with the measurement of alpha emitters in radionuclide calibrators, the feasibility of SPECT–based dosimetry of alpha emitters, the trouble of daughters' redistribution and the need of performing small scale dosimetry or microdosimetry to better understand treatment effect in some circumstances.

Key Words

Alpha-emitter radiopharmaceuticals; calibration standards; SPECT imaging; redistribution of daughters; small scale dosimetry; microdosimetry