

CME Session 6

Oncology & Theranostics Committee

Thursday, October 21, 10:45-12:15

Session Title

Quo Vadis PET/MRI?

Chairperson

Karolien Goffin (Leuven, Belgium)

Programme

10:45 - 11:14 Harald Quick (Essen, Germany): Methodological Developments

11:14 - 11:43 Irene Burger (Baden, Switzerland): Oncological Applications

11:43 - 12:12 Alexander Hammers (London, United Kingdom): Beyond Oncological Applications

12:12 - 12:15 Session Summary by Chairperson

Educational Objectives

1. Learn and understand the latest methodological developments of PET/MR in oncology, e.g. new attenuation and motion correction techniques as well as new hardware developments.
2. Learn and understand where PET/MR enhances PET in oncologic questions.
3. Learn and understand how PET/MR can be used 'beyond oncology', e.g. in neurology/psychiatry, cardiology, pediatric applications and inflammation.

Summary

Simultaneous PET/MR scanners have been commercially available since the early 2010s and enable body scanning in oncological applications as well as dedicated brain scanning in neuroscientific and neurological clinical applications. In this CME session, the future applications of PET/MR scanning in clinical routine and research setting will be discussed.

Latest methodological and technical developments in PET/MR attenuation and motion correction help to further improve the robustness and to expand the application spectrum of PET/MR examinations. Furthermore, new methodological developments help to further improve quantification of PET data.

PET/MR has the potential to introduce new applications for PET imaging in oncological patients. With the increasing number of studies looking into the added value of MRI information for PET examinations, we learn how molecular imaging with PET/MR can improve not only the local staging but also the assessment of tumor heterogeneity in one exam.

Apart from body scanning for oncological applications, neuroscientific and neurological clinical applications remain an important part of activity. In addition, PET/MR can combine exciting developments in cardiac MR complementing PET's unique nanomolar sensitivity (and higher spatial resolution compared with SPECT). Finally, PET/MR has certain advantages in pediatric applications and in the management of musculoskeletal disorders and inflammation.

Key Words

Attenuation and scatter correction, motion correction, PET/MR hardware, prostate cancer, neuroendocrine tumors, neurology, cardiology, inflammation