**BOOK REVIEW**

CrossMark

# Lale Umutlu, Ken Herrmann (Eds.). PET/MR Imaging: Current and Emerging Applications

## Springer International Publishing AG 2018, ISBN 978-3-319-69640-9

Luigi Mansi[1]

This book on PET/MR imaging is based on the wide and deep personal experience of some of the major international experts in the field. The editors are Lale Umutlu and Ken Herrmann, who both work at the University Hospital of Essen in Germany, respectively as Vice Chair of the Department of Diagnostic and Interventional Radiology and Neuroradiology, and as Chairman of the Clinic of Nuclear Medicine. L. Umutlu came to hybrid imaging from advanced magnetic resonance. Her focus of research is the use of PET/MRI in oncology, with an emphasis on malignancies of the female pelvis. K. Herrmann has extensive experience in nuclear medicine, having worked in leading Institutions in both Germany and the United States. His research focuses on hybrid molecular imaging, based on PET/CT and PET/MRI, radionuclide theranostics, PET-based response assessment, and oncological therapies.

Although the style of the book is light, coverage of the subject is extensive and deep.. A particular merit is the decision to discuss only current applications, with a critical analysis of emerging indications. Unhelpful discussion of theoretical or improbable indications is therefore avoided. The book comprises 144 pages organized into ten chapters, and includes 63 high-quality illustrations, 59 of which are in colour. After a general premise in the first chapter, technical improvements are discussed in the second. The third chapter is dedicated to the evaluation of the general role of PET/MRI in oncology. The following chapters treat three of the major fields of oncological interest: the prostate, female pelvis and breast. The editorial schema is then completed by discussion of the role of PET/MRI in neurodegenerative diseases, cardiology and inflammatory diseases by experts in these specific fields. The final chapter is dedicated to an analysis of the advantages of PET/MRI in paediatrics, that are strongly associated with the lower dosimetry with respect to PET/CT. Each of the chapters is accompanied by a good bibliography.

The volume offers an excellent and updated overview of the current applications of PET/MR imaging relevant not only to oncological, but also to non-oncological indications. This is an advantage with respect to other books on the same issue that almost exclusively discuss the use of PET/MR imaging in oncology. Interestingly, the book also opens a window on the future. The most important perspectives are critically scrutinized, identifying possible new fields of clinical application. The most important applications most likely to be introduced into clinical practice in the near future are probably those associated with response monitoring in patients receiving targeted drug therapy. There is also a high level of interest in the development of new tracers, including bifunctional tools.

A major value of this book is that it highlights competence in both nuclear medicine and radiology. Indeed, the authors and editors represent both fields of hybrid imaging guaranteeing the presentation of expertise and knowledge from both "worlds".

In my opinion this book would be of interest to those working in many fields: imaging specialists already working in PET/MRI, experts in PET/CT who want to have a better understanding of the information achievable by PET/MRI, and residents in radiology and nuclear medicine who are seeking to learn about a new highly performing procedure. Finally, the book may be of interest to clinicians, including oncologists, neuropsychiatrists, cardiologists, internists and paediatricians, to better understand when PET/MRI may be useful in clinical practice.

✉ Luigi Mansi
mansi.luigi@libero.it

[1]  Interuniversity Research Center for Sustainability (CIRPS), Naples, Italy

Springer