

EDITORIAL REVIEW

Editorial Review 2016 - Nuclear Medicine, Diagnostic Imaging and Therapy

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1. INTRODUCTION

The Journal of Diagnostic Imaging in Therapy (JDIT) is published online by Open MedScience, based in Northern Ireland, UK. The aim of this journal is to address the requirements of researchers - specialising in nuclear medicine, diagnostic imaging and therapy by providing open access to peer-reviewed articles. These high quality published articles are available in both HTML and PDF formats. All published articles are assigned a unique CrossRef DOI number and the HTML version is given a CrossMark accreditation.

The published articles highlight the application of diagnostic imaging with radionuclides, X-rays, magnetic resonance (MR), ultrasound (US) etc. The scope of these imaging modalities includes positron emission tomography (PET), single photon emission computed tomography (SPECT), hybrid imaging systems, radioguided surgery (RGS) and positron emission mammography (PEM). In addition included are the application of short and long-lived radioisotopes in research alongside the development of imaging agents and related targeted therapies. Furthermore,

JDIT's scope will include magnetic resonance imaging (MRI), computed tomography (CT), ultrasound (US) imaging and planar X-ray (digital, analogue and portable) systems.

Articles published in 2016 have covered the topics on the application of nuclear magnetic resonance in imaging, radioactive iodine ablation, lacrimal scintigraphy and ¹¹C-choline uptake in an enchondroma patient.

These published articles have all been peer-reviewed by the journals' editorial board and external reviewers. Here, we would personally like to take this opportunity to thank everyone on the journals' editorial board who has volunteered their time to review these articles. In this editorial review, we have summarized all the abstracts from the 2016 issue.

The first article of 2016 to be published online in the Journal of Diagnostic Imaging in Therapy was on the subject '*NMR-Active Nuclei for Biological and Biomedical Applications*', by Simon G. Patching [1]. Today, Nuclear magnetic resonance (NMR) spectroscopy is central to many disciplines especially in the area of chemical synthesis, biology and environmental and food science. This article provided an overview of the properties and applications of the active nuclei used in NMR. These parameters include solution NMR and solid-state NMR as well as magnetic resonance spectroscopy, magnetic resonance imaging for biological and biomedical systems. NMR is able to analyse a variety of samples and these include biofluids, cells, tissues, organs and/or whole body from various organisms for the detection and quantification of metabolites.

Furthermore, environmental samples such as water, soils and sediments can also be analysed by the methods above.

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Various biomolecules based on peptides, proteins and nucleic acids can be analysed for their elucidation of atomic-resolution structure, conformation and dynamics including the characterisation of ligand and drug binding: in addition to protein-ligand, protein-protein and protein-nucleic acid interactions. NMR continues to play a major role in drug screening and pharmacokinetics including the design and discovery of new drugs candidates. NMR has a wide scope in the measurement of the translocation of ions and small molecules across lipid bilayers including membranes. The principles of NMR also extend to the elucidation of chemical structures, phase behaviour and dynamics of membranes: in addition to atomic-resolution structure, orientation and dynamics of membrane-embedded peptides including biological proteins.

In this article entitled, ‘*Incidence of Second Cancers in Thyroid Cancer Patients Treated with Radioactive Iodine Ablation: How High Is Really the Risk?*’ by Giovacchini and Leoncini [2]. The authors discuss the role of differentiated thyroid cancer (DTC) which is a common endocrine tumour, the increase of incidents and the availability of a prognosis. The therapy of thyroid cancer mainly consists of thyroidectomy, thyroid hormone treatment and adjuvant radioactive iodine ablation (RIA). The authors review an evaluation of some of these published articles in this area with an emphasis on the reporting of results and data analysis. The critical analysis included the risk associated with iodine-131 exposure against other factors including enhanced medical surveillance, shared genetic variability, environment factors and proper methodological study design. In conclusion, the authors stress the point to medical professionals involved in the DTC therapy of patients to share knowledge to produce the best outcome of this approach to patients.

The next article on ‘*Lacrimal scintigraphy in the supine lateral head position*’, by Pohjanpelto *et al* [3]. The authors investigated lacrimal scintigraphy and showed that the supine side-down eye position of a test subject is inhibited by the transfer of the tracer into the lacrimal sac. They demonstrated that utilizing gravitation offers the patient an alternative to prolong the ocular contact time of each eye drop.

The final article of 2016 was on ‘*Solitary Increase of ¹¹C-Choline Uptake in an Enchondroma Patient with Biochemical Recurrence of Prostate Cancer*’, by Giovacchini and Ciarmiello [4]. The authors reported the case of a 72 year old male subject diagnosed with prostate cancer. This particular patient had a biochemical failure PSA rate of 2.8 ng/mL after radical prostatectomy. Bone scintigraphy and ¹¹C-choline PET/CT detected an isolated focal pathological activity in the proximal diaphysis of the left tibia. Surgery was performed on the patient and histological analysis revealed enchondroma.

The authors based their discussion on radiolabelled ¹¹C-choline for prostate cancer against other tumours or inflammatory processes. In particular, the proliferation or

concomitant inflammatory processes associated with bone remodelling in enchondroma on ¹¹C-choline uptake.

This journal continues to capture the imagination of many scientists working in nuclear medicine, diagnostics, imaging and therapy. The journal owes its success to the high quality manuscripts that are available on the open access platform to everyone.

Prof. Andrea Ciarmiello

Editor-in-Chief

Journal of Diagnostic Imaging in Therapy

Prof. Luigi Mansi

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Journal of Diagnostic Imaging in Therapy

CONFLICTS OF INTEREST

The authors reports no conflicts of interest.

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