

In this issue

In this issue, there are 11 original articles and two literature reviews on a range of topics, all related to radiation oncology or research.

In the first article, Turner, D'Alimonte and Fitch, consider the challenges that prevent radiation therapist (RTs) led research at their Centre. A qualitative approach was chosen for this study and five focus group sessions were conducted to discuss the issues related to research participation within the department.

The authors identify the challenges faced by RTs in the areas of research and development; this information has given them a greater understanding of the culture and attitudes to research activities from all groups. Authors plan to use these insights to set up a framework of support to facilitate increased initiatives. Alongside, this support RTs will have a clear understanding of their responsibilities to the organisation that facilitates their research.

In the next article, Mane and Pratyusha identify the *Candida* species in lesions of oropharyngeal candidiasis in patients undergoing radiotherapy for head and neck cancers and investigate anti-fungal susceptibility pattern. Swabs were collected from 60 patients who developed lesions suggestive of oral candidiasis at the end of first week of radiation. Antifungal susceptibility of each of the isolated species was done using disc diffusion method following CLSI guidelines. The authors conclude that the colonisation of *Candida* may lead to the development of infections with drug-resistant strains and hence the patients receiving radiation for head and neck cancers should undergo microbiological study for oral candidiasis.

In the next article, Kyei and Engel-Hills, present their findings of a study conducted at the radiation oncology department of a large teaching hospital in Ghana, to determine whether the use of a pain questionnaire would facilitate a

contribution by the radiation therapists (RTs) to the management of pain in the patients undergoing external beam radiotherapy. The rationale for the study was to test the pain questionnaire as a tool for routine use by RTs and to increase the knowledge and skill of the RTs with regard to pain assessment in order that they could have an effective role in the multidisciplinary approach to pain management.

Findings revealed that RTs could administer a limited pain questionnaire and use this for clinical assessment of patients with pain, refer patients who need urgent medical attention to the doctors, monitor the patients receiving radiotherapy and adjuvant chemotherapy as well as provide meaningful suggestions to the multidisciplinary team on the management of pain.

In the fourth article, Riis and Zimmermann, investigate the general features of the vertical travel of the treatment table in different configurations and the limitations of an optimised alignment. The investigations were carried out on two tables for different load cases, lateral positions and turntable angles. A wire was held vertically nearby the rotational axis of the table. The wire was used as reference in the investigations. A digital USB microscope was attached to the tabletop. An orthogonal set of images of the wire was acquired at different vertical table positions. By analysing the images, the vertical travel accuracy of the table was extracted.

Soo, Chu and French undertake an evaluation of patient satisfaction for radiation therapy services for Chinese patients at the British Columbia Cancer Agency – Vancouver Centre.

This study aims to evaluate the level of satisfaction for Chinese speaking patients who received radiation treatments. The authors conclude that despite a language barrier, Chinese speaking patients still contributed to improvement initiatives at the Centre. Efforts to ensure a culturally

appropriate environment and provision of services include recruitment of staff members who reflect the cultural diversity of the community serviced, use of interpreter services or bilingual health providers for clients, use of linguistically appropriate education materials and health care settings that is pleasant and respects the cultural diversity of the population serviced.

In the next paper, the authors Maria Wilczynska and Angel Garcia Alonso undertake a retrospective analysis of the effectiveness of radical radiotherapy in patients with early-stage non-small-cell lung cancer (NSCLC) treated over a period of 4 years.

Thirty-nine patients treated with radiotherapy of radical intent were identified. The findings of the study and presented survival results are consistent with those from other series published in the literature. At present, radical radiotherapy is often offered to patients with medically inoperable stage I and II NSCLC or those who decline surgery. There is emerging evidence that some new techniques like stereotactic radiotherapy could be also used in the operable, early-stage NSCLC.

The purpose of the study by Mcgovern et al., was to determine disease free and overall survival of neuroendocrine small-cell cancer of cervix in 15 patients treated at the Northern Ireland Cancer centre between 1999 and 2010. The research method used was a retrospective review of all patients diagnosed and treated with neuroendocrine small-cell cancer of cervix in Northern Ireland. Details of treatment modality including chemotherapy, radiotherapy and surgery were recorded. Survival rates recorded compared favourably with those reported in the literature and the stage of disease at diagnosis was the main determinant of survival.

In the next paper, Knaup et al., undertake a radiobiological-based comparison of single and dual-isotope prostate seed implants. In this work, a linear-quadratic model was used to compare single and dual-isotope implants. Ten patients were evaluated and for each patient, six treatment plans were created with single or dual-isotope combinations of ^{125}I , ^{103}Pd and ^{131}Cs .

For each plan, the prostate, urethra, rectum and bladder were contoured. The biologically effective dose was used to determine the tumor control probability and normal tissue complication probabilities for each plan.

The authors conclude, for all isotope combinations, the plans were improved by varying the initial seed strength. For the optimised treatment plans, no substantial differences in predicted treatment outcomes were seen among the different isotope combinations.

In the next paper, Knaup et al., explain that comparison of prostate seed implant treatment plans is currently based on the evaluation of dose-volume histograms and doses to the tumor and normal structures. However, these do not account for effects of varying dose-rate, tumor repopulation and other biological effects. In this paper, incorporation of the radiobiological response is used to obtain a more inclusive and clinically relevant treatment plan evaluation tool.

In the paper by Tunio et al., the authors share their experience of electron conformal therapy (ECT) and modulated electron therapy (MET) for post-mastectomy scar boost.

They conclude that ECT and MET is time saving and can be utilised for treating superficial targets to improve the treatment outcome and with better QA; however, efforts are required to design commercially available eMLC (electron multileaf collimators) in modern linear accelerators.

In the article by Sahota et al., the authors investigate the benefits of a region of interest atlas for radiation therapists (RTs) to aid in the identification of male pelvic structures in radiotherapy for prostate cancer, post-prostatectomy. The authors conclude that regions of interest atlases should be implemented to help identification of areas of anatomical complexity.

The next paper is a literature review by Barrett and Appleyard, the authors investigate the reliability of quantitative thresholding methods for positron emission tomography (PET)-aided delineation of gross tumour volume (GTVs)

in head and neck tumours. They conclude that currently the most suitable is found to be signal to background ratio; however, even this method was not found to be entirely reliable. More promising techniques need further evaluation before they could be implemented clinically and a Radiation Oncologist or Nuclear Medicine Radiologist must still validate all GTVs produced by quantitative methods.

The final paper, by Arthur, Livsey and Choudhury, is a literature review on delivering adaptive radiotherapy to the bladder during radical treatment. Radical radiotherapy to the bladder for muscle-invasive bladder cancer is a challenging treatment to plan and deliver because of organ mobility and its varying volume. The dynamic target volume can be tracked

with imaging during the treatment course, enabling an adaptive response and adjustment of the patient's individual treatment plan. This article summarises the difficulties encountered when treating the bladder, different approaches to patient imaging and adaptive radiotherapy techniques. Ultimately, these technological advances support the delivery of a personalised treatment plan to ensure optimal dose delivery to the tumour and simultaneous sparing of adjacent normal tissue.

To complete this issue, Chris Bragg, undertakes a review of the book: Adaptive Motion Compensation in Radiotherapy, Martin J. Murphy (editor), Published by Taylor & Francis

Professor Angela Duxbury