

In this issue

In this issue, there are six original articles, a communication, a technical note and a letter to the Editor.

In the first article, Bhalla, Wong, Ibrahim and Green undertake an assessment of factors influencing dose-fractionation schedules for palliative radiotherapy for bone metastases at a UK Cancer Centre. The authors set this paper in the context that meta-analyses demonstrate single-fraction radiotherapy to be as effective as multi-fraction treatment in palliating painful bone metastases, although surveys suggest reluctance in prescribing single fractions. The aim of this study is to assess the factors influencing the choice of dose-fractionation regimen in an unselected population, examine re-treatment rates and subsequent skeletal events. The authors conclude that single-fraction treatment is the commonest regimen, but multiple fractions are still frequently delivered. Better prognosis groups appear more likely to receive multi-fraction treatment, possibly to avoid the need for retreatment. Subsequent skeletal events are rare but carry high morbidity when they occur.

The theme of palliative treatment continues in the next paper in which O'Sullivan et al. undertake a prospective study of patients with impending spinal cord compression treated with palliative radiotherapy alone. Impending malignant spinal cord compression (IMSCC) may be defined as compression of the thecal sac, without any visible pressure on the spinal cord itself. Although there is a perception that IMSCC patients have a better prognosis and less severe clinical symptoms than true MSCC patients, these factors have never been documented in the literature.

The purpose of this paper was to record the characteristics, management and functional outcome of a group of patients with IMSCC, who were treated with radiotherapy in their institution and compare these parameters with similar data on MSCC patients.

Data (gender, age, primary oncological diagnosis, pain, performance status and neurological status) were prospectively collected for 28 patients. Patients were followed up post treatment to document their response to treatment and treatment-related toxicity. The authors conclude that, although further studies are necessary, they found that IMSCC patients in this study share similar prognosis and clinical symptoms with MSCC patients. Clinicians should be aware of this when communicating with IMSCC patients and their families and short-course radiotherapy should be considered.

In the third article, Mc Parland, Chng and Keyes review the dosimetric impact of supplementing pre-planned prostate implants with discretionary I-125 seeds for prostate cancer. Prostate implants at their centre are performed using a pre-planned technique. Physicians can augment the dose distribution using one to five non-planned 'extra' seeds and this option is determined without intraoperative feedback. The purpose of this research is to quantify the dosimetric impact of extra seeds and to assess the circumstances under which they are considered necessary. Implanting physicians used a questionnaire to record the 3D location and their rationale for using extra seeds. A plan reconstruction algorithm was used to distinguish the extra seeds from the planned seeds. Distributions with and without extra seeds were calculated to quantify the dosimetric impact to the prostate, urethra and rectum. The authors conclude that the use of two to five extra seeds can result in improvements to pre-planned prostate implants, whereas the costs in terms of increased rectal and prostatic urethral dose are relatively minor.

In the fourth original article, Gillan, Li and Harnett research into radiation therapist perspectives on cone-beam computed tomography (CBCT) practices and response to information. With recent technological advances in image-guided radiation

therapy (IGRT), through CBCT, more image-related clinical information is being collected, at more frequent intervals throughout the treatment course. As radiation therapy (RT) programmes further develop IGRT technology, the aim of this study is to assess whether the distribution and communication of professional responsibilities is evolving to ensure appropriate use of the technology.

Radiation therapists practicing at any of the 14 Ontario RT centres were sent an electronic survey ($n = 400$). Closed-ended quantitative items addressed perceptions regarding policies, comfort and professional responsibility in addressing CBCT concerns. Focus was on gynaecological, lung, head and neck disease sites. Options for qualitative comments and explanations were included, where appropriate.

The research concludes that through preliminary insight from Ontario therapists, a degree of inconsistency is apparent between perceptions, practices and assigned roles in the management of CBCT information. Clear definition of the scope and nature of therapists' responsibility for interpreting and addressing changes on CBCT images should be developed within each centre.

In the next paper, Tran et al. undertake a review of vascular disrupting agents as a concomitant anti-tumour modality with radiation. Tumour vasculature plays an important role in the development, maintenance and sustainability of a tumour. Endothelial cells, which are recruited into the tumour stroma, facilitate the formation of essential blood vessels that deliver nutrients and oxygen to tumour cells. A growing body of research is showing that there are synergistic anti-tumour effects when anti-vascular agents are combined with radiation. More recent reports have described favourable radiation response as a function of vascular targeting and blood vessel breakdown, primarily through interactions of radiation with vascular endothelial cells. Vascular disrupting agents are being utilised in several forms that include molecular targeting, biophysical assault and biological interference. In this review, the authors examine current advances

in anti-vascular agents to enhance tumour response when combined with radiation therapy. A comprehensive literature search was conducted on the US National Library of Medicine, National Institutes of Health (PubMed). Authors conclude that current research suggests the applicability of vascular disrupting agents as an effective radiation sensitisation agent. Pre-clinical and clinical trials have been well developed to form the theoretical framework to apply this powerful modality to the treatment of cancer.

In the final original article, Helen Egestad presents her study on the radiographers' relationship with head and neck cancer patients. Head and neck cancer patients face many demanding events such as radiation therapy, which can cause anxiety and uncertainty. Studies report that relevant information decreases emotional distress and inadequate communication can lead to increased fear and anxiety. The aim is to explain what radiographers do that may lead to less anxiety and uncertainty for head and neck cancer patients. This study was conducted via qualitative interviews and took on a phenomenological, hermeneutic approach. Eleven head and neck cancer patients were interviewed 1 month after radiation therapy. Helen concludes head and neck cancer patients feel vulnerable and need the radiographer to create a safe atmosphere when they undergo treatment. Then radiographers reduce uncertainty, provide emotional support, reduce loneliness, provide information and create alliances.

The next paper is a communication from Gagan Saini et al. The authors undertake a retrospective study for set-up variations in patients being treated for post-operative radiation therapy for carcinoma of the gall bladder by IGRT using CBCT scans and paired kilo-voltage beam portals (kVps).

The final paper by Radaideh et al. present a technical note on their work to design, construct and evaluate an anthropomorphic head and neck phantom for the dosimetric evaluation of 3D-conformal radiotherapy (3D-CRT) dose planning and delivery, for protocols developed by the Radiation Therapy Oncology

Group (RTOG). The authors conclude that the agreement between predicted and measured dose shows that the phantom is a useful and efficient tool for 3D-CRT technique dosimetric verification.

To complete this issue, there is a letter to the Editor in response to a previously published paper in Volume 12 Issue 1.

Professor Angela Duxbury