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Palliative radiation therapy is a mainstay in the management of symptoms among patients with advanced and metastatic cancers. However, there is a latent period between the delivery of therapy and the hoped for response to it. As such, patients should not receive therapy unless an estimate of their expected survival is first made. Acute side effects cannot be justified unless there is a reasonable expectation that patients may live long enough to benefit from therapy. This presentation will summarise the difficulties radiation oncologists have had historically with predicting survival for their patients, it will highlight studies of palliative radiation therapy among patients nearing the end of life, it will present prognostic models from the literature that are most applicable to those practicing palliative radiation therapy, and it will focus on topics that are in need of and are well suited to future research in this important area of study.

SP-0099
Role of supportive care to improve QoL in patients treated with radiotherapy
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Abstract not received.

SP-0100
Screening for metastases in high risk patients
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The primary goal of screening is the early detection of asymptomatic, previously unrecognized malignancy when treatment is more effective than if it were instituted after development of signs or symptoms. Screening for metastatic disease has historically been used to narrow therapeutic options and avoid futile interventions. But in the oligometastatic era - where the separation between curative- and palliative-intent radiotherapy is becoming less distinct - case-finding for the purposes of radical treatment of low volume distant metastases is increasingly common, despite the lack of clarity regarding the impact on clinical outcomes, quality of life and health care costs. Systematic risk-stratification would ideally enable the selective utilization of scarce resources, avoiding test-related complications along with delays in initiation of treatment awaiting results which have little likelihood of altering management in the majority of patients. Potential benefits of different modalities will be reviewed, as well as issues to be considered in defining both an appropriate target population and screening approach.

SP-0101
The importance of palliative care in radiation oncology training programmes
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In most departments, up to 40% of all radiation treatments are given with palliative intent. This includes treatment of metastatic sites of disease and locally advanced primary disease. Over the last 10 years with the availability of new technologies, we have seen an increasing complexity of palliative radiation treatments particularly in the setting of oligometastatic disease. Coupled with this, advances in systemic therapies in many disease sites have translated into patients with metastatic disease living longer. Unlike curative intent treatment which is largely protocol driven, palliative intent treatment requires knowledge of a multitude of patient, disease and treatment factors and the ability to accurately predict prognosis in order to individualise fractionation and treatment technique. Palliative radiotherapy is becoming recognised internationally as a sub speciality and it is becoming increasingly important that we recognise the need for formalised palliative care training within our specialty. Through international collaboration we can develop core competencies for our trainees, encourage palliative radiotherapy rotations and fellowship opportunities, and foster enthusiasm for palliative radiotherapy research in the future striving to deliver evidence-based, convenient and effective treatment for patients with the fewest possible side effects.

Symposium with Proffered Papers: Adaptive radiation therapy

SP-0102
On-board MR image guidance for adaptive therapy
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The concept of magnetic resonance image-guided radiation therapy (MR-IGRT) has been under development for the past few years, with the first clinical system implemented and in use since January of 2014. This system consists of a split 0.35T MR scanner straddled by three 60Co sources mounted on a ring gantry. The on-board MR shares an isocenter with the RT system and is capable of capturing high resolution volumetric images of the patient in the treatment position, as well as real-time planar cine images during treatment delivery. The availability of on-board MR images offers the capability to visualize soft tissue for better localization, as well as potential treatment adaptation based on the geometry of the day. The MR-IGRT system implemented in our clinic has an integrated treatment planning system with fast dose re-optimization, and dose calculation which allows modification of structure contours, followed by re-planning while the patient remains in the treatment position. While the topic of online adaptive therapy has been of significant interest in research studies over the past two decades, the clinical implementation has been straggling behind due to the stringent system requirements necessary to make the process clinically realistic.

Here we report on the clinical implementation of the first online adaptive therapy system, the workflow and staffing considerations, patient specific quality assurance, and the achievable overall treatment times from initial patient setup to completion of the treatment.

SP-0103
Morphological adaptation in cervix cancer
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The morphology of cervical cancer referred for definitive radio-chemotherapy varies considerably ranging from expansive tumours confined to the cervix (stage IB) to irregular and infiltrating tumours involving the parametria (stage IIB), further to the pelvic wall (stage IIIB), or to the distal part of the vagina (stage IIIB). Bladder and rectum may also be involved (stage IVA) as well as the corpus uteri. In addition to this morphological heterogeneity at diagnosis, additional variability arises as significant tumour regression often occur already during the first 2-3 weeks of external beam radiotherapy (EBRT).

Local tumour control in cervical cancer require significant dose which is achieved with the application of brachytherapy (BT), typically going from a dose level of about 45 Gy obtained with EBRT to a dose level of more than 90 Gy covering at least 90% of the target volume. Due to the steep dose gradients involved in BT even higher dose levels well above 100 Gy is then reached in the central part of the tumour.

BT has traditionally been administered by use of fixed standard plans delivering certain doses to specific points defined in 2D in relation to the BT applicator (point-A) rather than adapted to the changing morphology of the cervix tumour. However, during the last decade a significant change in clinical practice has taken place towards using a dynamic target concept developed by the GEC ESTRO gynaecological working group. This 4D target concept enables the delivery of adaptive levels of BT dose to the tumour extension at both diagnosis (intermediate-risk CTV) and remaining tumour and cervix at time of BT (high-risk CTV). To obtain maximal advantage of the initial tumour regression during EBRT, but also to avoid deleterious repopulation, the application of BT employing combined intracavitary-interstitial applicators. In centres experienced in image guided BT the new intracavitary/interstitial technique is now employed in almost 50% of the patients.

Single centre series with significant patient numbers have already demonstrated improved local control and survival with morphology adapted BT especially in large tumours even surpassing the effect found for concomitant cisplatin 15 years ago. In addition, the risk of severe urologic and gastrointestinal morbidity has been significantly reduced. Multicentre studies including quality of life endpoints are now maturing pointing to specific dose response curves for tumour control and dose effect curves for morbidity. These impending findings will further expand the therapeutic window in cervix cancer radiotherapy as these new principles for image guided BT with evidence based planning aims and constraints find their way into the clinics around the world.

Biologically individualized treatment by integration of biological data and respective adaptation of treatment is major field of research and has a great potential to prove the concept of personalized oncology to provide a benefit to patients. The potential benefit may result from descalation in patients with good-risk tumours, targeted escalation in intermediate-risk patients and assigning patients with high-risk tumours to novel approaches to overcome radiation resistance. Innovations in functional imaging, biomarker research, data modelling, high-precision treatment planning and delivery within the context of better radiobiological understanding and careful consideration of established clinical factors enables translational and clinical research into dose painting, adaptation according to temporal changes and model-based treatment prescriptions.

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Purpose/Objective: Image guided adaptive brachytherapy (IGABT), has transformed treatment for locally advanced cervical cancer considerably. Dose adaptation and combined intracavitary/interstitial (IC/IS) applicators have significantly changed dose and volume parameters for targets and organs at risk, resulting in improved outcomes. This study aimed to evaluate the impact of IC/IS brachytherapy on late morbidity on which, to date, there is little data.

Materials and Methods: Seven hundred and thirty one patients with locally advanced cervical cancer were enrolled in the retroEMBRACE study from 12 institutions. Detailed information on grade 1-5 toxicity (CTCAE,V3.0) following IGABT was captured in 610 patients enrolled from 8 institutions. These patients were analysed in the present study. Based on technique, patients were divided into two groups. One group (N=300) referred to as advanced adaptive (AD) included all patients from the empirical time point, when an institution used IC/IS technique systematically in more than 20% of the cases. The other group (N=310), referred to as limited adaptive (LA), included all other patients where the most frequent technique used was intracavitary.

Results: Patient related factors such as age, FIGO stage, tumour width, lymph node status and follow up time were equally distributed between the groups. No difference in EBRT target volumes, doses and fractionation schedule was