is most crucial. Malignancies which are potentially curable will always have concern for quality of life and fertility issues. High precision radiotherapy will be able to meet both ends. In this retrospective study attempt had made to reduce the dose to reproductive organs to preserve the reproductive functions.

Material and Methods

5 cases of non-uterine malignancies of age between 9-30 years who were treated between 2009-2014 were retrospectively analysed.2 were sacral tumors,1 STS of pelvis,1 Ca rectum,1 RMS pelvis. All of them had one or combination of surgery,chemotherapy.All of them were required radiation, 4 of them were treated with Intensity modulated radiotherapy and 1 with cyberknife.

Age at diagnosis	Diagnosis	Treatment	Dose to primary	Mean Dose to uterus	Mean Dose to ovary	Reproductive function	follow up
9	RMS pelvis	Chemotherapy, Bladder preserving surgery	50Gy/25Fr IMRT	25Gy	9Gy/12Gy	Menstruating	6 years 6 months
16	STS sacrum	surgery, chemotherapy	66Gy/33Fr IMRT	28Gy	7.7Gy/46Gy	Not Menstruating	6 years 4 months
28	STS sacrum	Surgery 2 times	60Gy/30Fr IMRT	28Gy	7Gy/10Gy	Delivered baby	5 years 4 months
25	Ca rectum	Chemotherapy, surgery	IMRT 60Gy/28Fr	28Gy	12Gy/9Gy	Menstruating	3 years 8 months
26	STS pelvis	Surgery, Chemotherapy	30Gy/5Fr Cyberknife	28Gy	3Gy/8Gy	Menstruating	3 years 5 months

Results

Among 5 cases, all are alive, 4 pts (80%) have no disease 1 pt has recurred in postoperative area.4 (80%) patients are having menstruation,1 had delivered healthy baby.1 patient having primary amenorrhoea is treated with hormones.

Conclusion

High precision radiotherapy in non-uterine malignancies will be able to deliver effective dose to the target, able to achieve within tolerance dose to reproductive organs. In highly selective subset of patients fertility preservation can be attempted. However proper randomised trials in this regard is warranted.

EP-1425 Permit to enter no-fly-zone: Risk-adapted mediastinal SBRT for oligometastases safe and effective

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Purpose or Objective

Stereotactic Body Radiation Therapy (SBRT) to the central chest & mediastinum must be undertaken with caution due to the risks of severe toxicity that may be observed with extreme hypofractionation schedules. A risk-adapted approach uses moderated dose-fractionation schedules and IMRT to meet tolerance constraints of critical normal tissues (even at the cost of reduced coverage of PTV) aiming to achieve disease control with an acceptable safety profile.

Material and Methods

We analysed radiotherapy planning, clinical parameters and outcomes for twelve consecutive patients treated at our cancer centre. Nine patients received 60 Gy in 8 fractions delivered on alternate days, and three patients received 45-50 Gy in 10 daily fractions. All treatments were delivered as prescribed on a Varian Clinac iX using daily online CBCT imaging. The most common primary tumour types were colorectal (eight) or renal (two), and mean patient age was 68 years (range 38-89). Eight patients had previously undergone surgical resection (six) and/or ablation (four) of lung metastases, on up to three occasions.

Results

Median PTV size was 48.5 cc (range 10.7-111.4 cc) and one patient underwent treatment of two separate lesions (combined volume 42.3 cc). For eleven patients the PTV overlapped with proximal bronchial tree (PBT, comprises trachea and bronchi up to second division), and for the other patient the PTV overlapped the heart and chest wall. For the portion of PTV not overlapping organs-at-risk (OARs), mean D95 was 85.0% of prescribed dose (range 69.6-99.0%), and minimum dose to this volume was between 56.4-86.8% of prescribed dose (mean 67.7%). All mandatory OAR dose constraints were met, however the 'optimal' constraint for PBT was not possible to meet for any patient with overlap of PTV with PBT (Dmax 0.5cc < 32.0 Gy). After median follow-up of 218 days (range 14-389 days) only one patient has had in-field progressive disease; this patient subsequently died of metastatic disease. Four further patients have had distant progressive disease, including one who has died but for whom local disease was controlled at six months. One patient showed complete response on CT at 6 months, and all others have shown partial response or stable disease. No patients suffered acute toxicity affecting delivery of radiotherapy. One patient developed Grade 2 pneumonitis which resolved with steroids.

Conclusion

Using moderated dose-fractionation schedules and IMRT to meet tolerance constraints of normal tissues appears to enable safe and effective delivery of SBRT to central chest oligometastatic disease. Treatment resulted in very low incidence of toxicity and excellent rates of local control, though ongoing follow-up will be required to detect late toxicity and record long-term survival outcomes.

EP-1426 A model for internal target volume definition based on 4D-cone beam computed tomography.

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Purpose or Objective

To describe the procedure to build up the internal target volume (ITV) in stereotactic body radiotherapy using 4D three-dimensional cone-beam CT (4D-CBCT) and Simmetry Elekta X-Ray volume imaging system (XVI).

Material and Methods

It was employed a dynamic thoracic phantom (CIRS Inc), a ball-shaped polystyrene phantom with a sphere of known volume equipped of a motor-driven platform, simulating a