

volumes in treated volumes depended on bladder fillings. CONCLUSIONS Implementation of 3D treatment planning system in teletherapy of cervical cancer helps to avoid a geographical miss, to reduce both the treated volume and the doses delivered to organs at risk.

10.

THE COMPARISON BETWEEN THE THREE – FIELD AND FOUR-FIELD TECHNIQUES OF PLANNING OF RADIOTHERAPY IN PROSTATE CANCER

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Purpose: evaluation 3-field(3F) and 4-field(4F) planning techniques for patients with localized prostate cancer. Materials/methods: Five patients with prostate cancer (T3N0M0) were evaluated. CT images were obtained at 5mm increments and were transferred to CadPlan_planning_workstation. The planning target volume (PTV) was defined as prostate and seminal vesicles with 15mm margins around clinical target volume (CTV) except prostate-rectum interface where 5mm margin was applied. CTV was defined as prostate and seminal vesicles. Following organs at risk (OAR) were outlined: rectum, bladder, right femoral head. Following 3F and 4F plans were performed: 3F with angles (0deg-120deg-240deg; 0deg-90deg-270deg) and 4F (0deg-90deg-180deg-270deg). We also created two versions of treatment plans including of energy; 6MV and 20MV for Clinac2300CD. Total dose was 74Gy. Mean total doses of thirty plans in irradiated organs at risk (rectum, bladder and right femoral head) were compared. For PTV mean and minimum dose were criteria for comparison of treatment plans. Results: There were no significant dose differences between evaluated plans of treatment in PTV(0.05). Because mean dose in femoral head in each treatment plan was below tolerance dose, main dose-limiting organ was rectum and bladder. Lowest mean dose 42.7 Gy in rectum was achieved by application of 3F technique of 20MV(0deg-90deg-270deg). Bladder was also spared with the same 3F technique of 20MV, where mean dose was 45.2Gy. Conclusions: This study showed that the „T” three-field technique (an anterior and two opposing lateral fields) provided with 20 MV is optimal and assures the lowest rectal dose.

11.

THE ANALYSIS OF DOSES IN THE TUMOUR AND IN CRITICAL TISSUES IN THE BRACHY THERAPY OF MALIGNANT MELANOMA LOCALISED IN EYES

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Brachytherapy is known and used procedure in the treatment of tumours localised in eyes, especially recommended when avoiding of enucleation accompany the long term cure.

Aim: The aim of this paper was to compare the doses delivered to the tumour and critical tissues during the treatment of the group of patients treated with Ru-106 applicator.

Patients: Between 1994 and 2000, 67 patients (dgn. melanoma malignum in eye) underwent brachytherapy. At 51 patients the tumour was localized in the back of eye, at 15 equatorially and at one in the front section of the eyeball. The median of the patients' age was 56.3 years. The CCB type applicator was applied for 56 patients, the COB for 7 and the ROA for 4 patients.

Method: Irradiation - Prescribed dose of 60 Gy was normalized to the top of the tumour, it decreased by 50%—10% per millimetre with the distance from applicator. The isotope producer determined the dose-rate accuracy for +/-30%. This caused that therapeutic dose had to be calculated taking account for the minimal dose-rate, while the doses in critical organs for maximal dose-rate possible.

Analysis: All patients were divided into three subgroups: 8 patients into 1st, 19 into 2nd and 40 into 3rd. The inclusion criterion was size of tumour: up to 3 mm of height (1st group), 3-5 mm (2nd), and larger than 5 mm (3rd) respectively.

Results: Table presents mean doses in the tumour, sclera and lens (calculated at it's middle) for each group of patients.

Tumour size [mm]	Doses [Gy]		
	Tumour	Sclera	lens
< 3	102.9	162.4	137.6
3 – 5	186.2	463.5	396.2
> 5	268.2	974.9	840.6