

RESULTS OF AVERAGE CRITICAL ORGAN DOSE IN WHOLE BRAIN RADIOTHERAPY USING HELICAL TOMOTHERAPY FOR BRAIN METASTASIS

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Introduction - Purpose : Critical organ doses of radiotherapy performed by tomotherapy are below critical values. Tomotherapy treatment planning systems allow for 2 and 3 dimensional, IMRT and Direct treatment planning. Patient data consist of main units such as anatomical modeling, internal bundle planning, dose volume histograms, helical treatment planning. The aim of this study was to evaluate the mean critical organ doses of patients with palliative whole brain irradiation with the aim of tomotherapy

Methods - Tools : Plans of 20 patients who underwent whole brain palliative radiotherapy with helixomotherapy in our study were evaluated retrospectively. Treatment of patients was 30 Gy in 10 fractions of doxycycline. Because of brain metastasis, simulation CTs, fixed with head and neck mask of patients with all brain irradiation indications, were sent to the treatment planning station. Target volumes and critical organ contours were drawn and CT and contour data were transferred to the planning system. In the planning system, dose volume hybrids were created for each critical organ and target volume. In the treatment mode, all target volume scanning is provided by selecting a modulus of section thickness 5 cm (Jaws width) 3, a pitch of 0.43 and moving the patient table at a constant speed.

Findings : Mean treatment time is 2.8 minutes. Critical organ mean doses were 3.62 Gy in the right lens and 4.06 Gy in the left lens, respectively

Discussion : HelicalThomoterapy can provide homogeneous distribution of target volumes and acceptable critical organ doses in whole brain palliative irradiation.

Keywords: Whole brain RT, HelicalTomotherapy, Critical organ