

RESEARCH

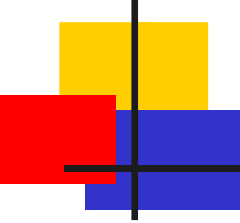
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Comparison of dose distributions hippocampus in high grade gliomas irradiation with linac-based imrt and volumetric arc therapy: a dosimetric study

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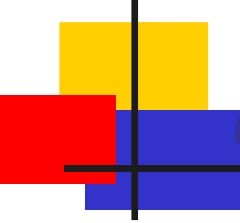


KARADENİZ TEKNİK ÜNİVERSİTESİ
RADYASYON ONKOLOJİSİ ANABİLİM DALI



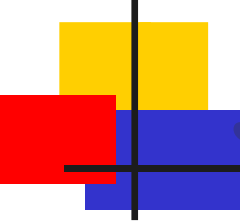
AMAÇ:

The aim of this study was to assess the feasibility of sparing contralateral hippocampus during partial brain radiotherapy in high grade gliomas



METHOD AND MATERIAL:

20 previously treated patients were replanned to 60 Gy in 30 fractions with sparing intensity-modulated radiotherapy (IMRT) and volumetric modulated arc therapy (VMAT) using the following planning objectives: 100 % of PTV covered by 95% isodose without violating organs at risk (OAR) and hot spot dose constraints. For each, standard intensity-modulated radiotherapy (IMRT) plans were generated, as well as sparing IMRT and VMAT plans which spared contralateral (hemispheric cases) hippocampus.



SONUÇLAR:

When the three plans were compared, there was equivalent PTV coverage, homogeneity, and conformality. Sparing IMRT significantly reduced maximum, mean, V20, V30 and V40 hippocampus doses compared with standart IMRT and VMAT ($p < 0.05$). VMAT significantly reduced maximum left eye and lens doses compared with standart IMRT and sparing IMRT ($p < 0.05$). Brainstem, chiasm, left and right optic nerves, right eyes and lens doses were similar. VMAT significantly reduced monitor units compared with standart IMRT and sparing IMRT ($p < 0.05$).