عنوان مقاله:

Comparison of IMRT Plans with and Without Bone Marrow Sparing For the Treatment of Cervical Cancer

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خلاصه مقاله:

Introduction: The present study aimed to compare plans with Bone Marrow sparing (BM-IMRT) and without Bone Marrow Sparing (N-IMRT). Material and Methods: Fifteen cases of cervical cancer cases were selected for retrospective study. All the cases were previously treated with normal IMRT. For this study, plans with BM-IMRT were created again for all patients following RTOG guidelines. The prescribed dose of ۵۰Gy in ۲۵ fractions was given. The plan having coverage of ۹۵% of PTV receiving ۹۵% of the prescribed dose was accepted. The plans were compared based on PTV coverage (dose to ۲%, ۹۸% of target); constraints of OARs (Organs at Risk) were the volume of ۴۰% < ۴۰Gy for normal bladder and rectum (volume receiving dose ۵Gy) V۵<۹۵%, V۱۰<۸۰%, V۲۰<۶۰%, V۳۰<۵۰% and V۴۰<۳۵% respectively for Bone marrow and lowest possible doses to bowel were given for planning criteria. Apart from this, HI, CI and R۵۰% were also calculated concerning PTV coverage to analyze plan quality. Results: There was a statistical difference in P-values of D۲, D۹۸, TV۹۵, HI, R۵۰% but the actual difference is less than ۲%. In the case of OARs, there were also significant differences in statistical as well longitudinal in values of V۱۰, V۲۰, V۳۰ and V۴۰ of Bone Marrow (P<۰.۰۱) and there was only statistical differences (p<۰.۰۵) at V۵۰ of bladder and rectum. Conclusion: Without scarifying dose coverage for planning target volume, bone marrow can be spared while treating cervical cancer patients using IMRT technique with bone marrow as an extra constraint.

کلمات کلیدی:

Bone marrow sparing, CI, HI, Dose Spillage Index