

ABSTRACT

Radiation Treatment Planning Optimization Involves Comparing The Five Field Radiation Technique and Four Field Box Technique For Cervical Cancer. The study aims to determine radiation planning using a Treatment Planning System with accurately targeted doses while minimizing the radiation dose in the Organ At Risk(OAR) areas. This study utilized data from five cervical cancer patients treated with 3D-CRT utilizing the five field box system technique. The assessment included measurement of Dose Volume Histogram(DVH) values for the PTV, GTV, CTV, OAR, Conformity Index(CI), and Homogeneity Index (HI). Therefore, proper counterbalancing of the PTV, GTV, and CTV with accurate margins and precise Dose Volume Histogram (DVH) values serves as the determinant for a safe dose delivered to the target volume. The research results demonstrate that the DVH curve for the Organ At Risk(OAR) decreases to zero, in accordance with the ICRU 50 and 62 protocols. This approach contributes to improved treatment outcomes while simultaneously reducing radiotherapy side effects. The five-field irradiation technique is proven to be more optimal in producing a uniform dose distribution, as reflected by the values of the Homogeneity Index(HI) and Conformity Index(CI). Furthermore, this technique provides better protection for healthy tissues, thereby supporting overall therapeutic effectiveness. This research indicates that the five field technique is more effective compared to the box system technique.

Key word : Optimization, Dose Volume Histogram(DVH), Five- Field Technique, Box System Field Technique, Ca, Cervix.