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Intravaginal Packing Effects of CT-Guided Intracavitary Radiotherapy for Cervical Cancer

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Ten plans for Ir 192 high-dose-rate ICR after 30-40 Gy external beam radiotherapy were investigated. The ICR pre-scription dose for an each insertion was 4 or 5 Gy to point A, twice weekly, and the total dose of ICR ranged from 24 to 30 Gy (median, 24). A fractional 100% dose was prescribed to point A. Two sets of CT images before and after packing were acquired at the first ICR session with artifact-free applicators in place. The International Commission on Radiation Units and Measurements Report 38 (ICRU-38) rectal and bladder points, and the percentage of volumes receiving 50%, 80%, and 100% of the prescribed dose were also analyzed and compared. Conventional point A plans were performed. The mean values of the bladder and rectal ICRU-38 point doses before packing, 109.93 % and 117.80%, were decreased after packing to 98.85 % and 94.93 %, respectively, with the dif-ference being marginally significant (p=0.013) (Ed- this p value is not significant at all). The maximum point doses of the bladder and rectum were decreased by 20.12% and 16.01%, respectively. The mean-volume fractions of the bladder receiving 50%, 80%, and 100% of the reference dose were decreased by 8.29 %, 4.48 % and 2.64 %, while the decrease of the mean-volume fractions for the rectum were relatively small at 4.44 %, 1.52 % and 1.20 %, respectively. However, this reduction was not significant based on a p value of about 0.15~0.81. While the dose at the reference point was decreased significantly due to the packing effects, the presence or absence of packing had little effect on volumetric doses because the volumes enlarged by the packing effects were relatively small compared to the volume of the entire bladder and rectum itself. The packing is still needed as it could re-duce the complications caused by the high point dose and decrease the maximum dose.

Keywords : Intravaginal Packing, Intracavitary Radiotherapy