

ABSTRACT

Evaluation of cervical cancer treatment plan was performed based on radiotherapy objectives by utilizing dose volume histogram and dose distribution on patient anatomy. The treatment plan gives the same dose to all patients but the results obtained are not the same in each patient. Therefore, treatment planning must be evaluated with radiobiological parameters. The evaluation uses Tumor Control Probability (TCP) and Normal Tissue Complications Probability (NTCP) estimated by Poisson and Lyman Kutcher Burman models. This study was conducted with the aim to evaluate the TCP and NTCP results by varying the number of fractionations. The results of the variation were compared with the conventional technique to see a decrease or increase in the TCP and NTCP values. The evaluation results showed that the NTCP of bladder organ increased against the conventional NTCP by 0,06%, the NTCP of rectum increased against the conventional NTCP by 0,54%, and the NTCP of intestine increased against the conventional NTCP by 2,82%. These results were obtained by decreasing the amount of fractionation so that the relationship between NTCP and the amount of fractionation is inversely proportional. This shows that NTCP is affected by the dose per fraction, the number of fractionations, and the total dose given. While the TCP value is not much affected due to its resistance to radiation.

Key Word : *Cervical Cancer, Fractionation, Poisson, LKB, Radiobiology*