513/E1

Investigation of dose accuracy for oesophageal cancer in external beam radiotherapy

M M M P Marasinghe[1], D D N B Daya[1*] and A H Dilip Kumara[2]
1 Department of Physics, faculty of Science, University of Colombo, Colombo 03
2 Medical Physicist, Cancer Unit, Teaching Hospital, Karapitiya

In the process of radiotherapy for cancer patients, effective treatment requires a high degree of accuracy of measurements. With regard to this fact, the accuracy of the experimental conclusions is of utmost importance. Hence, the objective of this study was to investigate, the level of accuracy of the experimentally obtained values, when compared with theoretical values in the process of radiotherapy. For this purpose, the oesophageal cancer tumour was designed inside the thorax phantom. Then, a plan was designed to give a dose of 200 cGy to the tumour volume, while minimizing the dose to the surrounding volume. Then absorbed doses were recorded at the planning at several points. Afterwards, the doses of radiation exposed to the phantom (in accordance with the time given by the planning system.) and the absorbed doses were measured practically. The calculated value of the dose at the planning and the measured value of the dose absorbed by the tumour were in good agreement, having a variation within ± 5 % variation, which is the recommended limit of variation. Most of the values obtained were slightly higher (0 – 2 %) than the calculated dose at the planning.

Acknowledgement: Dr. P.K Wijewikrama, Director, and Dr. Lakshman Obesekara, Consultant Oncologist at the Teaching Hospital Karapitiya, and the University of Colombo are gratefully acknowledged.