

Calculation of Lungs Physiological Lung Motion in External Lung Irradiation

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Abstract : This is an experimental study deals with measurement of the periodic physiological organ motion during lung external irradiation in order to reduce the exposure of healthy tissue during radiation treatments. The results showed for left lung displacement reading ($4.52 + 1.99$ mm) and right lung is ($8.21 + 3.77$ mm) which the radiotherapy physician should take suitable countermeasures in case of significant errors. The motion ranged between 2.13 mm and 12.2 mm (low and high). In conclusion, the calculation of tumour mobility can improve the accuracy of target areas definition in patients undergo Sterostatic RT for stage I, II and III lung cancer (NSCLC). Definition of the target volume based on a high resolution CT scan with a margin of 3-5 mm is appropriate.

Keywords : physiological motion, lung, external irradiation, radiation medicine