عنوان مقاله:

Correction of 3D whole breast motion in CT- based radiotherapy of breast cancer

محل انتشار:

نهمین کنگره بین المللی سرطان پستان (سال: 1392)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

External beam radiotherapy (EBRT) of breast cancer operates by several planning methods. CT-based method use tangential filed and it has homogenous dose distribution in target volume. There are some errors in calculation of planning parameters. One of these errors is motion of breast in whole radiation therapy cause by respiration, heartbeat and …. . A method to explicitly account for intrafraction motion is to temporally adjust the treatment beam based on the tumor position with time such that the motion of the radiation beam is synchronized with the tumor motion.Respiratory motion during CT-based treatment planning of breast cancer causes a problem. The clinical target volume (CTV) to planning target volume (PTV) margin needed to account for respiratory motion means that the lung and heart dose is higher than would occur in the absence of such motion. There are 2 important strategies for reducing respiration-induced organ motion in radiation treatment: deep inspiration breaths hold (DIBH) and respiratory gating. DIBH is a controlled breathing technique in which the patient performs a supervised breath hold during treatment. These methods have some advantages and limitations.Adapting radiation delivery to respiratory motion is made possible through corrective action based on real-time feedback of target position during respiration. . A prediction algorithm that employed both prediction models—the sinusoidal model and the adaptive filter model—was developed to estimate prediction accuracy over all the sessions.Method and material For prediction of algorithm of breast motion we used photographic camera and detect 3D motion of breast by capture pictures in Consecutive frames. Time delay between photos is 0.2 second and the total time of Photography is the same with exposure time. In this study we use 15 patients with breast cancer and take pictures in RT room. The camera sets in horizontally toward breast of patient. And motion detect by processing images in MATLAB software .then the correction algorithm obtained. In this study effect of size of breast has not studied.Result This study is running now and the result of breast motion detection by this method is not ready yet. But in experience models by image processing method, average prediction errors of less than 0.15cm are possible for response times less than 0.3 seconds. Conclusions Use of image processing method for breast motion radiotherapy is accurate, fast and very cheap. In radiotherapy of whole breast we can use this simple method for correct target volume position change, and operate more corre ...

کلمات کلیدی:

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