Service Priorities and Programmes

Electronic Presentations

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How bladder scan can increase efficiency in radiotherapy for prostate cancer patients?

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Introduction

Cone beam computed tomography (CBCT) is as a verification tool in prostate cancer treatment to check bladder status, positions of organs-at-risk (OAR), such as seminal vesicles and rectum, and planning target volume (PTV) in daily local practice. Bladder status is an important limiting factor to decide the successful of radiation treatment (RT). It is because the position of the OAR and PTV depends on the bladder status. Prostate cancer patients are requested to maintain more or less the same bladder status in every treatment day. In daily setup procedure, frontline staff “trust” the full bladder status is achieved by patient’s feeling. Frontline staff position the patient, then preform and review CBCT before treatment. These procedures requested at least 10 minutes (mins) per case. During this period, the patient is requested to maintain a full bladder status and keep still on treatment table. However, ”false” sensation of full bladder is very common in prostate cancer patients. Thus, the first CBCT is usually failed, and repetition of the whole procedure is needed. This duplicate process is not only squander the machine hours, but also increases workload on frontline staff. On the other hand, patient feels very uncomfortable to keep full bladder for this time-demanding process. In consequently, some of them may urinate on the table. Extra cleansing time is needed, and it would further idle machine and cause serious delays of other cancer patients.

Objectives

To reduce the chance of repetition of CBCT and the chance of the contamination of the treatment table by urination so as to maximize machine efficiency and shorten the waiting time of patients.

Methodology

A bladder scan machine was introduced to check patients’ bladder status before positioning patients and performing CBCT. A plastic bag was applied to patients in genital region during treatment. A retrospective review was done by evaluation the treatment throughput.

Result

-Failure of CBCT frequency is reduced -Shortened the lead time (CBCT ~10 mins vs bladder ~20 sec) -No. of cases treated per day were increased -Shortened patient waiting time -Prevented unnecessary exposure from radiation -Reduced the chance of urination during the treatment -Increase of the patient comfort and confidence -Reduction of workload of workmen