



Service Priorities and Programmes
Electronic Presentations

Convention ID: 1087

Submitting author: Dr T S CHAN

Post title: Resident, PMH, KWC

Reduction of Radiation Dosage of CT-KUB Performed in A&E CT Suite of Princess Margaret Hospital

*Chan TS, Ma KF, Chan HF, Wong T, Wong KF, Chung KS, Cheng KC
Department of Radiology, Princess Margaret Hospital*

Keywords:

Radiation Dosage Reduction

CT-KUB

Princess Margaret Hospital

International Standard

CT Scanning Protocol

Renal colic

Introduction

Computed tomography of the kidney, ureters and bladder (CT-KUB) is the gold standard for investigating renal colic nowadays. Due to the high prevalence of urinary tract calculi and its recurrent nature, exposure to ionizing radiation from repeated investigations can be high, especially in the radio-sensitive organs such as the gonads.

Objectives

(1) To minimize the radiation dosage of CT-KUB performed in A&E CT suite of Princess Margaret Hospital (PMH) without significant compromise in image quality

Methodology

(1) To measure the radiation dosage of CT-KUB performed in A&E CT suite of PMH; (2) To compare the result with international standard - National Diagnostic Reference Levels (NDRs) for the United Kingdom (UK) - CTDIvol: 10mGy; DLP: 460mGy cm; (3) To perform a pilot study to assess the image quality of CT-KUB after adjustment of the scanning protocol; (4) To implement the new scanning protocol and re-measure the radiation dosage

Result

Results: From Jan 2017 to Feb 2017, 47 patients had CT-KUB performed in A&E CT suite of PMH. The measured radiation dosage (CTDIvol: 16.41mGy; DLP: 678.44mGy cm) was higher than the international standard. A pilot study involving 22 patients with CT-KUB performed with adjusted scanning protocol (noise index, mA and pitch were adjusted) was performed, with image quality assessed by two associate consultant radiologists. The pilot study showed satisfactory image quality and the adjusted scanning protocol was implemented to all patients from late Oct 2017. The radiation dosage of 39 patients with CT-KUB performed with the adjusted protocol was measured (CTDIvol: 4.73mGy; DLP: 188.07mGy cm), showing significant reduction in radiation dosage, which became meeting the international standard. Conclusion:

Careful adjustment of CT scanning protocol, while maintaining the diagnostic image quality, can minimize the radiation risk to patients and meet the international standard.