



Service Priorities and Programmes
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Third phase of audit on paediatric plain CT brain radiation dose in PMH

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Introduction

With the aim to lower paediatric CT brain radiation dose and to balance between diagnostic quality and radiation hazard, new CT protocol was implemented in our department in 2012: For 1st set of CT brain, noise index was kept at 3.0; while for axial follow up CT brain, noise index was increased to 3.5.

Objectives

(1) To re-audit on paediatric plain CT brain dosage in our department and (2) to audit on compliance of radiographers after change in protocol.

Methodology

Retrospective study of all paediatric (age less than or equal to 16) plain CT brain performed during the period of 1 Feb 2013 to 28 Feb 2013. CT scans with contrast and or more than one region being scanned in the same study were excluded. The patients' age, volume CT dose index (CTDIvol), Dose-length product (DLP), Noise index (NI) and whether the scan was a follow up scan were recorded.

Result

A total of 47 out of 52 cases of plain CT brain were included. 5 cases were excluded, with 4 cases performed with contrast study and 1 case performed with whole body scan in a trauma setting. 8 (17.0%) out of 47 cases were performed as follow up scan. 4 of the follow up scans used increased NI (3.5) with compliance to new protocol increased from 13.6% to 50% compared to last audit. Among the non-follow up cases, 21 cases (53.8%) used increased NI. Considering all the cases with increased NI (3.5), they showed a 30.6% reduction (mean 472.2mGyCm) in DLP compared with the result in previous audit (mean 680.8mGyCm). To conclude, new protocol was effective in reducing CT brain dose to paediatric patients, with 30.6% reduction in DLP. Re-enforcing the radiographer's compliance to the new protocol would be helpful in further controlling paediatric CT brain dose. More than half of the non-follow up cases used the increased NI of 3.5 instead of 3.0. Further discussion on feasibility of applying increased NI for all paediatric CT brain cases is recommended.