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Trend and Factors Associated with Repeat Computed Tomography Examinations in Tertiary Hospitals: Linked Health Administrative Data in Western Australia

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Introduction

Computed tomography (CT) has become an essential part of clinical practice. However, repeat CT scans has raised a concern about unnecessary exposure to ionising radiation and waste of health care resource. While substantial effort is underway to reduce inappropriate use of diagnostic imaging tests including CT, little evidence of any change in repeat CT use and its associated factors.

Objectives and Approach

This study aimed to measure trend in repeat CT use and identify factors associated with repeat CT use in tertiary hospitals in Western Australia (WA).

This study used WA linked administrative records from hospital morbidity, emergency department presentations, and picture archiving and communication system datasets to capture all tertiary hospitalisations and number of CT use during the admission from 2003 to 2015. Multivariate logistic regression was used to examine trend and determine characteristics associated with repeat CT, for admissions with and without major surgery during hospitalisation.

Results

This study aimed to measure trend in repeat CT use and identify factors associated with repeat CT use in tertiary hospitals in Western Australia (WA). This study used WA linked administrative records from hospital morbidity, emergency department presentations, and picture archiving and communication system datasets to capture all tertiary hospitalisations and number of CT use during the admission from 2003 to 2015. Multivariate logistic regression was used to examine trend and determine characteristics associated with repeat CT, for admissions with and without major surgery during hospitalisation.

Conclusion / Implications

This study indicates that clinical factors such as cancer, injury and multimorbidity are factors contributing to repeat CT. A reduction of repeat CT over the study period among admissions without surgical procedure suggests a potential reduction of unnecessary CT scan, although further study is needed to fully capture whether this is an actual change in practice

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