



Diagnostic value of delayed washout rate of contrast-enhanced multi-detector computed tomography in adrenal incidentalomas



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Received 24 September 2013; accepted 21 November 2013
Available online 18 December 2013

KEYWORDS

Washout;
Multi-detector computed
tomography;
Adrenal incidentalomas

Abstract *Introduction:* Most adrenal incidentalomas are benign non-hyperfunctioning adenomas which can be categorized as lipid-rich or lipid-poor. An adrenal CT post-contrast delayed washout study may differentiate adenomas from other adrenal neoplasms.

Aim of the work: To evaluate the role of MDCT in detecting adrenal incidentalomas with assessment of the diagnostic value of 15-min delayed washout rate in the differentiation of these incidentally detected adrenal lesions.

Materials and methods: Sixty-four patients with adrenal incidentaloma were enrolled in this study that was carried out in the period from January 2010 to January 2013. The mean attenuation values of adrenal masses were measured in the pre-contrast, post-contrast venous and delayed enhanced phases in addition to estimation of 15-min delayed washout rate. The relative percentage washout (RPW) and absolute percentage washout (APW) values were calculated. The receiver operating characteristic (ROC) curve analysis was performed to evaluate the accuracy of different MDCT phases at optimal cut-off values for diagnosis of adrenal incidentalomas.

Results: The detected incidentalomas included 46 adenomas and 18 non-adenomas. The accuracy of the RPW at a washout threshold of $\geq 40\%$ was 98.9%, and the accuracy of APW at a washout threshold of $\geq 60\%$ was 99%.

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Peer review under responsibility of Alexandria University Faculty of Medicine.

<http://dx.doi.org/10.1016/j.ajme.2013.11.005>

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Conclusion: The 15-min delayed washout MDCT could be a valuable diagnostic tool in adrenal incidentalomas. At APW $\geq 60\%$ and RPW $\geq 40\%$, it is significantly accurate in differentiating adrenal adenomatous lesions.

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1. Introduction

The adrenal glands are routinely visualized on computed tomography (CT) scans of the abdomen and on most CT scans of the chest. Nowadays, owing to the improved quality of CT images and the important role played by the multi-detector CT (MDCT) in medical care, there has been an increased frequency of detecting incidental findings.¹

An incidental adrenal mass, often referred to as an adrenal incidentaloma, is defined as an adrenal mass discovered

incidentally on a cross-sectional imaging examination performed for another reason. Incidental adrenal masses are common, estimated to occur in approximately 3–7% of the adult population.² Although the adrenal gland is involved by a range of diseases, adrenal adenomas are common, with a prevalence of up to 9% in the general population in autopsy series. Most adrenal incidentalomas are benign non-hyperfunctioning adenomas.³ They represent 80% of all adrenal neoplasms.⁴

Accurate radiological evaluation is essential for appropriate diagnosis and differentiation of benign from malignant

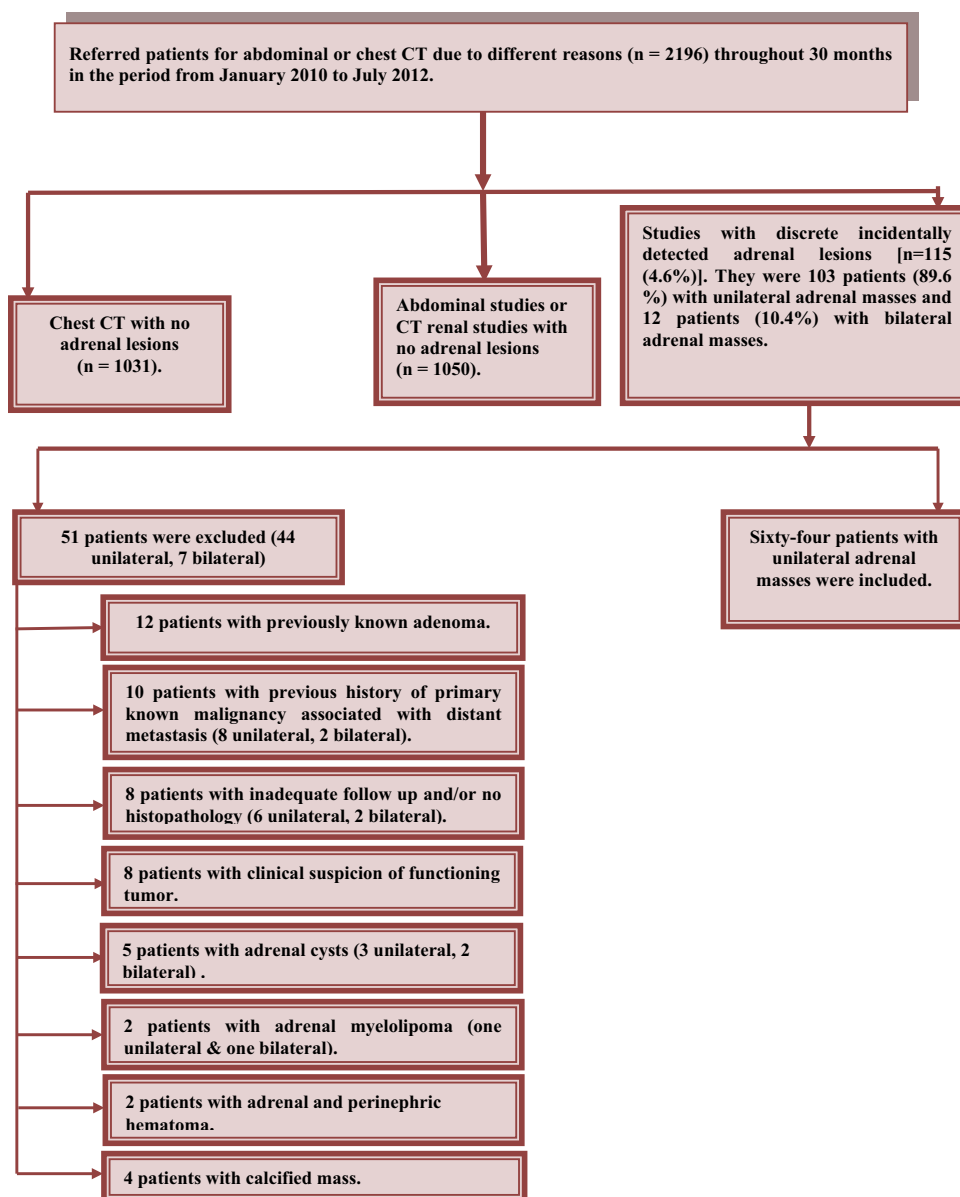


Figure 1 Schematic representation of patients in the present study.

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