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Prevalence of Extra Cardiac Disease in Patients Undergoing Cardiac CTA

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Introduction:

CT Angiography (CTA) is becoming widely used for the assessment of coronary artery disease (CAD). Patients with known or suspected cardiac disease are also known to be at risk for having extra cardiac disease (ECD). We reviewed 1080 CTA's performed to assess the frequency and clinical significance of ECD present in the chest, base of the neck, spine and upper abdomen, in order to determine whether a complete CT scan of the chest is warranted in addition to the CTA in patients with clinical indications (non-screening).

Methods: Standard non-contrast CT scan of the chest from the thyroid to the adrenal glands followed by CTA with non ionic IV contrast, using 16 and 64 MSCT were performed in 1080 patients (pts), with clinical indications, during 12 months (February 2005 thru January 2006). Mean age was 63. Asymptomatic patients for CAD screening were excluded. The findings were reviewed to categorize non-cardiac abnormalities in the following groups: Pulmonary, Vascular, Pericardial, Mediastinal, Thyroid, Renal, Adrenal, Hepatic, Splenic, Pancreatic, Breast, Axillary, Spinous, and Hiatal Hernias.

Results: In total, 1,397 ECD were detected in the 1080 cases. In 744 patients (69% of cases) ECD was found. Most of ECD were discovered on the non-contrast scans. The regions of abnormalities included: Pulmonary – 539, Vascular – 107, Pericardial – 31, Mediastinal – 51, Thyroid -62, Renal – 33, Adrenal – 33, Hepatic – 191, Splenic – 36, Pancreatic – 14, Breast – 12, Axillary – 5, Hiatal Hernia – 138, and Spinous – 72. The abnormalities ranged in clinical significance from benign (hepatic and renal cysts) to malignant (breast cancer, saddle pulmonary emboli, aortic aneurysm/dissection, and lung cancer).

Conclusions: Coronary CT Angiography is a new clinical tool that is rapidly becoming commonplace in the diagnostic armamentarium of both inpatient and outpatient clinical cardiology. Our study demonstrates that clinically significant ECD is common in pts undergoing CTA. Patients presenting with chest pain and shortness of breath have the highest risk of having ECD. Interpreting physicians must pay close attention to the non-coronary structures, since it may have a significant impact on morbidity and mortality. Thus, we conclude that due to the high prevalence of ECD, the addition of a non contrast complete CT scan of the chest is reasonable, necessary and warranted, in pts with clinical indications for a cardiac CTA.