



ACC-i2 with TCT

A CASE-CONTROL STUDY OF IODINATED CONTRAST AND THE SUBSEQUENT INCIDENCE OF THYROTOXICOSIS IN PATIENTS UNDERGOING CARDIAC CATHETERIZATION

i2 Poster Contributions

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Authors: *Jason Lappe, J. Muhlestein, Heidi May, Jeffrey Anderson, Tami Bair, Donald Lappe, Intermountain Medical Center, Murray, UT, USA*

Background: Contrast dye has, on average, 150-350 mg/mL of iodine, whereas the daily recommended iodine intake is only 150mcg. At these doses the thyroid's compensatory mechanisms may fail, leading to thyroiditis and thyrotoxicosis (TTx). However, the incidence of TTx after cardiac catheterization is unknown.

Methods: Patients (N=957) who received >100 mL of contrast at cardiac angiography, had no prior history of thyroid disease and had a recent thyroid stimulating hormone (TSH) test were evaluated. Cases were matched 1:5 by age (± 5 years) and sex to controls (N=4,785). Controls had no history of thyroid disease or angiography. Follow-up for both groups included a TSH level at 2 weeks-6 months, (cases: after angiography, controls: after baseline TSH) and any subsequent TSH during the follow-up period (maximum: 5 yrs). Incident TTx was defined by ICD-9 code. Changes in TSH were compared using the non-parametric Kruskal-Wallis test.

Results: Cases received an average of 183.0 ± 96.6 mL of contrast. Compared to controls, cases had a higher incidence of diabetes, hypertension, and hyperlipidemia (43.4% vs. 24.5%, 77.5% vs. 54.7%, and 71.6% vs. 54.7%, respectively, $p < 0.001$ for all). At 6 months there was no significant change in TSH for cases or controls when compared to baseline (cases: 3.6 ± 12.2 , median: 1.9 vs. 3.0 ± 1.9 , median: 1.9; controls: 2.7 ± 6.5 , median: 1.7 vs. 2.3 ± 3.7 , median: 1.7). However, there was a significant increase in the incidence of TTx in the cases at 6-months (1.4% vs. 0.05%, $p = 0.002$), 1-year (1.9% vs. 1.1%, $p = 0.03$) and over the long-term (3.8% vs. 1.6%, $p < 0.0001$). After adjustment, the increased risk of TTx for cases remained significant: 6 months: OR=2.80, $p = 0.005$; 1 year: OR=1.79, $p = 0.04$. No interaction between sex and incidence of TTx was found at any of the time points.

Conclusions: In patients without a history of thyroid disease, contrast use >100 mL at angiography is a significant risk factor for the subsequent development of TTx. This novel observation should prompt additional studies to identify patients that are at greatest risk of developing TTx after angiography.