



# A Large Case–Control Study Confirms that Development of Abnormal Thyroid Function Is Associated with Iodinated Contrast Material

Rhee CM, et al.

## ANALYSIS AND COMMENTARY ● ● ● ● ●

I admit my bias is that the study must be correct, based on the known Wolff–Chaikoff and Jod–Basedow effects and the very high iodine content of contrast media (4). This is a difficult study for a nonstatistician to tease apart, but over 20 years, there were 4096 patient intervals (1 patient can have more than 1 interval that is separated by time) during which the serum TSH was checked twice within 2 years. Only 361 of these intervals were associated with the administration of iodinated contrast material. This means that the study captured only a small percentage of patients who received contrast material. One could ask whether there was a patient bias, since the period of repeating a TSH test (from 2 weeks to 2 years later) is more frequent than the period routinely used

to follow patients without thyroid symptoms. This study confirms an association between the development of thyroid dysfunction and the administration of contrast material (1-4), although the design does not allow it to be used to show causality; that would require a prospective study that fully characterizes the patient’s thyroid status before and at set times after the administration of contrast material. If the number needed to harm is 1 in 23 for the development of hyperthyroidism, then a prospective study that obtained follow-up samples from at least 2000 patients after they received contrast material would be required in order to obtain a statistically significant difference, a study that would appear to be difficult to perform and fund.

— **Stephanie L. Lee, MD, PhD**

## References

1. Conn JJ, Sebastian MJ, Deam D, Tam M, Martin FI. A prospective study of the effect of nonionic contrast media on thyroid function. *Thyroid* 1996;6:107-10.
2. Gartner W, Weissel M. Do iodine-containing contrast media induce clinically relevant changes in thyroid function parameters of euthyroid patients within the first week? *Thyroid* 2004;14:521-4.
3. Hintze G, Blombach O, Fink H, Burkhardt U, Köbberling J. Risk of iodine-induced thyrotoxicosis after coronary angiography: an investigation in 788 unselected subjects. *Eur J Endocrinol* 1999;140:264-7.
4. van der Molen AJ, Thomsen HS, Morcos SK; Contrast Media Safety Committee, European Society of Urogenital Radiology (ESUR). Effect of iodinated contrast media on thyroid function in adults. *Eur Radiol* 2004;14:902-7. Epub February 28, 2004.