CLINICAL **THYROIDOLOGY** FOR THE **PUBLIC**

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THYROID NODULES

Guidelines provide effective cancer risk assessment for thyroid nodules

BACKGROUND

Thyroid nodules are common, but only 4–7% of nodules are cancerous. Both ultrasound and fine-needle biopsy have been used to determine if thyroid nodules are cancerous. Fine needle biopsy is considered an accurate method for identifying thyroid cancer, but all nodules do not need to be biopsied. Guidelines have been developed recommending fine needle biopsy for certain nodules seen on ultrasound. In the American Thyroid Association guidelines, thyroid nodules are classified into five categories according to their combination of US features: (a) high suspicion of cancer, (b) intermediate suspicion of cancer, (c) low suspicion of cancer, (d) very low suspicion of cancer and (e) non-cancerous. Fine needle biopsy is strongly recommended in nodules in the high- and intermediate-suspicion categories, which have cancer rates of more than 70%–90% (high risk) and 10%–20% (intermediate risk). Fine needle biopsy is also recommended for nodules in the low-suspicion, very-low-suspicion, and benign categories when the nodule is larger than 1.5 to 2.0 cm.

Another guideline—the Thyroid Imaging Reporting and Data System (TIRADS)—has been developed to help standardize the reporting and management of thyroid nodules detected on ultrasound. This classification is divided into six categories: 1 (normal thyroid gland), 2 (benign), 3 (probably benign), 4A (low suspicion for cancer), 4B (intermediate suspicion for cancer), 4c (moderate concern but not classic for cancer) and 5 (highly suggestive of cancer). The purpose of this study was to compare the risk stratification of thyroid nodules with the American Thyroid Association guidelines and the TIRADS guidelines.

THE FULL ARTICLE TITLES

Yoon JH. Malignancy risk stratification of thyroid nodules: comparison between the thyroid imaging reporting and data system and the 2014 American Thyroid Association management guidelines. Radiology 2016;278:917–24. Epub September 8, 2015.

SUMMARY OF THE STUDY

This study was conducted from November 2013 to July 2014. A total of 1293 thyroid nodules in 1241 patients were included. Nodules included in the study were either removed surgically or had definitive diagnostic results on fine needle biopsy. All nodules measured at least 10 mm. A TIRADS category and the ultrasound pattern as determined with American Thyroid Association guidelines were assigned to each nodule. The correlation between the TIRADS category or American Thyroid Association grading and the cancer rate were evaluated.

Of the 1293 thyroid nodules, 1059 (81.9%) were benign and 234 (18.1%) were malignant. A total of 44 of the 1293 nodules (3.4%) did not meet the criteria for the American Thyroid Association patterns and were classified as "not specified." The cancer rates of TIRADS category 3, 4a, 4b, 4c, and 5 nodules were 1.9% (6 of 316 nodules), 4.2% (17 of 408 nodules), 12.9% (33 of 256 nodules), 49.8% (130 of 261 nodules), and 92.3% (48 of 52 nodules). The cancer rates of nodules with very low, low, intermediate, and high suspicion for malignancy with the American Thyroid Association guidelines and not-specified patterns were 2.7% (11 of 407 nodules), 3.1% (10 of 323 nodules), 16.7% (39 of 233 nodules), 58.0% (166 of 286 nodules), and 18.2% (8 of 44 nodules). There was high correlation between classification with TIRADS and American Thyroid Association guidelines with no statistically significant differences.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Several studies have focused on specific features on thyroid ultrasound that can help separate benign from cancerous nodules. There has been no universal agreement on a standard classification system for nodules detected with ultrasound. This lack of agreement results in confusion for physicians. The TIRADS and recent American Thyroid Association guidelines aim to minimize the confusion associated with recommendations for the follow-up for thyroid nodules. This study demonstrates both TIRADS and the American Thyroid Association guidelines provide effective cancer risk groupings for thyroid nodules making it easier for physicians to determine who should undergo observation, fine needle biopsy, and surgery.

— Ronald B. Kuppersmith, MD, FACS

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THYROID NODULES, continued

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DEFINITIONS

Thyroid nodule: an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

Thyroid fine needle aspiration biopsy (FNAB): a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.