

Gene expression test identifies low-risk thyroid nodules

June 25 2012

A new test can be used to identify low-risk thyroid nodules, reducing unnecessary surgeries for people with thyroid nodules that have indeterminate results after biopsy. The results of the multi-center trial, which includes researchers from the Perelman School of Medicine at the University of Pennsylvania, appear online in the *New England Journal of Medicine*.

Ultrasound-guided fine-needle aspiration biopsies (FNA) accurately identify 62-85 percent of thyroid nodules as benign. For those deemed malignant or unclassifiable, surgery is currently required. However, about 20-35 percent of nodules have inconclusive results after FNA. This novel test classifies genes from the thyroid nodule tissue obtained through FNA.

"This test, currently available at Penn Medicine, can help us determine whether these nodules with indeterminate biopsy results are likely to be benign," said Susan Mandel, MD, MPH, professor of Medicine in Endocrinology, Diabetes and Metabolism in the Perelman School of Medicine at Penn. "If so, patients may be able to avoid unnecessary surgeries and lifelong thyroid hormone replacement treatment."

In an accompanying NEJM editorial, J. Larry Jameson, MD, PhD, Dean of the Perelman School of Medicine and Executive Vice President for the Health System at the University of Pennsylvania, notes that the [gene expression](#) test is able to identify nodules at low risk of malignancy, making it possible to avoid approximately 25,000 thyroid surgeries per

year. "In this era of focusing on high-quality outcomes at lower cost, this new gene expression classifier test is a welcome addition to the tools available for informed decision making about the management of thyroid nodules," writes Jameson.

The gene expression classifier was tested on 265 indeterminate [thyroid nodules](#), and was able to correctly identify 92 percent of cases as suspicious. The test demonstrated a 85 - 95 percent negative predictive value, effectively ruling out a malignancy.

The Penn research team included Dr. Mandel, Zubair Baloch, MD, PhD, and Virginia A. LiVolsi, MD, both professors of Pathology and Laboratory Medicine. The investigation was funded by a research grant provided by Veracyte, Inc., the maker of the gene expression classifier.

Provided by University of Pennsylvania School of Medicine

Citation: Gene expression test identifies low-risk thyroid nodules (2012, June 25) retrieved 24 April 2024 from <https://medicalxpress.com/news/2012-06-gene-low-risk-thyroid-nodules.html>

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