Detecting Thyroid Disease by Computer

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Researchers in India have developed an improved expert system for the diagnosis of thyroid disease. They describe details of their approach to screening medical data in a forthcoming issue of the International Journal of Computational Science and Engineering.

Thyroid disease in which either too much thyroid hormone is produced (hyperthyroidism) or too little is made (hypothyroidism) are common health problems across the globe. An overactive thyroid can lead to increased perspiration, a raise pulse, tremors, anxiety, nervousness, and irritability, insomnia, thinning of the skin, fine brittle hair, and muscular weakness. Sluggish thyroid in contrast might cause constipation, cold intolerance, decreased sweating, a slow pulse, depression, dry skin and poor female fertility. Thyroid disease is often asymptomatic and is commonly undiagnosed. It is obviously less of a clinical problem if there are no symptoms but left untreated symptoms can ultimately become apparent causing various problems for patients with either an overactive or a sluggish thyroid.

Jaganathan Palanichamy and Rajkumar Nallamuthu of the PSNA College of Engineering and Technology, in Tamilnadu, India, have descried that thyroid can effectively be diagnosed through proper and careful interpretation of the thyroid data but the classification of a raw dataset from patient records can also allow undiagnosed thyroid problems to be discovered through computerized screening.

The screening algorithm developed by the PSNA team boosts the accuracy of earlier approaches, bringing the level to almost 93.5%, as opposed to earlier tests that had 92% confidence or less. That means that 15 more patients are given neither a false positive nor a false negative of every 1000 in the screened dataset. Over a healthcare network with millions of patients that can amount to significant numbers of people correctly identified with a thyroid problem based on patient records rather than having to carry out specific thyroid function blood tests. As such, the screening approach could also be used by doctors in a clinical setting to assess patients that present with a range of symptoms and so identify with precision whether a thyroid test and subsequent pharmaceutical intervention is required.

"*An expert system for optimizing thyroid disease diagnosis*" *in Int. J. Computational Science and Engineering, 2012, 7, 232-238*

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