PEDIATRICS

Natural history of abnormal TSH levels in children

Researchers in Israel have defined the natural history of abnormal TSH levels in children. “The most significant finding [of this study] is that the majority of children who progressed to overt hypothyroidism had an initial TSH level >10 mIU/ml,” comments Stephen LaFranchi, a pediatric endocrinologist at the Oregon Health and Science University (Portland, OR). “Most children with ‘subclinical hypothyroidism’ or ‘subclinical hyperthyroidism’ revert to normal TSH levels on follow-up.”

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Lazar and coworkers analyzed the computerized health-insurance records of 121,052 pediatric outpatients who had

undergone TSH testing in 2002 and were followed up 5 years after. Children with overt thyroid dysfunction were excluded.

Initial TSH levels were within the normal range in 96.5% of the children tested; TSH levels were low (<0.35 mIU/l) in 0.2%, elevated (>5.5 mIU/l) in 2.9% and highly elevated (>10 mIU/l) in 0.4%. The frequency of TSH testing increased with age, and testing was more common for girls than for boys. Repeated testing was recorded in 45.7% of the cohort during follow-up; testing was most frequent for children who had highly elevated TSH levels at baseline. TSH levels remained normal or normalized over time in the majority of cases; however, children with initial TSH levels >7.5 mIU/l (particularly girls) were likely to have sustained, abnormal levels of the hormone.

However, as LaFranchi points out, some limitations must be considered. “This was

a retrospective chart review; as a result, in most cases the investigators do not know why thyroid function tests were performed,” he states. “It would have been useful to know which patients had thyroid testing because of clinical suspicion of thyroid dysfunction.” Furthermore, the frequency of testing was at the discretion of the primary-care physician and the reason why only some children underwent testing for thyroid antibodies was unclear.

Nevertheless, the data of Lazar *et al.* reinforce previous findings. The next step will be to conduct a prospective study to correlate TSH test results with specific clinical features.

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Original article Lazar, L. *et al.* Natural history of thyroid function tests over 5 years in a large pediatric cohort. *J. Clin. Endocrinol. Metab.* doi:10.1210/jc.2008-2615