

Correlation between attention-deficit/hyperactivity disorder, its pharmacotherapy, and thyroid dysfunction: A nationwide population-based study in Taiwan

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Abstract

OBJECTIVE:

The aim of this study was to examine the comorbid rates of thyroid dysfunction among patients with attention-deficit/hyperactivity disorder (ADHD) and the general population. We further examined whether pharmacotherapy affects ADHD patients' risk of developing thyroid dysfunction.

DESIGN AND MEASUREMENT:

We recruited 75,247 newly diagnosed ADHD patient and 75,247 healthy controls between January 1999 and December 2011 from the National Health Insurance database in Taiwan. We compared hyperthyroidism, hypothyroidism, and other common paediatric psychiatric diseases between ADHD patients and controls. We carried out logistic regression analysis to identify an independent factor for predicting thyroid dysfunction. Furthermore, we analyzed the time sequence of the diagnosis and the risk of developing a thyroid disorder after receiving pharmacotherapy.

RESULTS:

Compared to the control group, the ADHD group had higher comorbidity rates of both hyperthyroidism (1.1% of ADHD vs. 0.7% of controls, aOR: 1.72, $p < 0.001$) and hypothyroidism (0.6% of ADHD vs. 0.2% of controls, aOR: 2.23, $p < 0.001$). Of the ADHD patients with comorbid thyroid dysfunction, about two-thirds and half of patients were diagnosed with ADHD prior to their diagnosis of hyperthyroidism and hypothyroidism, respectively. Furthermore, pharmacotherapy had no significant influence on the risk of developing hyperthyroidism (aHR: 1.09, $p = 0.363$) or hypothyroidism (aHR: 0.95, $p = 0.719$) among ADHD patients.

CONCLUSION:

Patients with ADHD had greater comorbid rates with thyroid dysfunction than the control subjects, but pharmacotherapy for treating ADHD did not affect thyroid dysfunction later in life. However, these findings should be further verified using a clinical cohort with comprehensive laboratory assessment in the future.