Thyroid Hormone Concentrations in Depressed and Nondepressed Adolescents: Group Differences and Behavioral Relations

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ABSTRACT

Objective: To examine thyroid hormone concentrations and the influence of these hormones on mood and problem behaviors in adolescents with depression. **Method:** The sample included 21 depressed adolescents and 20 matched control adolescents. Blood was drawn to measure thyroid-stimulating hormone (TSH), free thyroxine (FT4), thyroxine (T4), and triiodothyronine (T3). Major depression (MD), attention deficit (AD), and obsessive-compulsive (OC) symptom scores were abstracted from the Diagnostic Interview Schedule for Children. Total behavior problem scores from the Youth Self-Report also were obtained. **Results:** Paired analysis revealed there were no significant group or gender differences or group by gender interactions for TSH, T4, or T3. For FT4, however, there were significant group differences ($p = .008$) showing lower concentrations in depressed adolescents than control subjects, suggesting that the former might be functionally hypothyroid. Although there were no significant correlations of TSH with any of the psychological measures obtained, in the depressed group correlations were negative (although not always significant) with FT4 and total behavior problems ($r = -.40$, $p = .09$), as well as with symptom scores of MD ($r = -.25$, $p = .288$), OC ($r = -.56$, $p = .011$), and AD behaviors ($r = -.57$, $p = .008$). Higher numbers of symptom scores of OC and AD were related to lower concentrations of FT4. **Conclusions:** FT4 concentrations were lower in depressed adolescents. These findings suggest a relationship between negative behaviors and dysfunction of the hypothalamic-pituitary-thyroid axis in adolescents with depression. *J. Am. Acad. Child Adolesc. Psychiatry,* 1996, 35(3):299–306. **Key Words:** thyroid, depression, adolescents.