HYPOTHALAMIC PITUITARY THYROID AXIS AND PERSONALITY DIMENSIONS
IN A SAMPLE OF HEALTHY SUBJECTS

Piskunov A.K., 1 Teryaeva, N.B., 2 Moskvin A.V., 2 Fusté, A., 1 & Ruiz, J. 1

1 Department of Clinical Psychology and Psychobiology, University of Barcelona, Spain
2 Burdenko Neurosurgical Institute, Moscow, Russia

AIMS

Clinical studies suggest hypothalamic-pituitary-thyroid axis (HPTA) to be involved in psychoaffective disorders, especially mood disorders (Hein & Jackson, 1990). Hypothyroidism and depression share some symptoms and many patients with depression have abnormal thyroid hormones levels (Kirkegaard & Faber, 1998). Increase in TSH level is generally considered to be a low thyroid function indicator. However, the role of HPTA in regulation of mood and behavior in non-psychiatric population remains poorly recognized.

In the present study we explore whether personality dimensions in healthy individuals might be related to serum thyroid hormones levels.

METHOD

Participants

A total of 104 healthy volunteers (46 male, 58 female, aged 18-55 years (35±12) were recruited for this study. An anamnestic schedule was filled in to assess the presence of any Axis I disorder, medical condition or any thyroid or psychotropic drug intake.

Psychological measures

All participants completed the short version of revised Cloninger’s Temperament and Character Inventory (TCL-140).

A proportion of participants (71 subjects) completed the short version of the NEO Five Factor Inventory (NEO-FFI).

Thyroid hormones measures

Blood was collected in the morning between 8:00 a.m. and 10:30 a.m. after an overnight fast using separating gel tubes.

The levels of thyrotropin (TSH), total and free thyroxin (TT4 and FT4) and free triiodothyronine (FT3) were determined using automated chemiluminescence immunoassay.

RESULTS

We performed series of multivariate stepwise regression with thyroid hormones as dependent variable and personality scores as predictors. Age and sex were included as covariates.

In the case of Temperament only the model for TSH reached statistical significance with standardized regression coefficient for Persistence. For Character dimensions, TSH serum level was positively related to Self-Directedness and TT4 negatively related to Cooperativeness. Using stepwise regression, NEO-FFI scales could not predict thyroid hormones levels with β statistically different from zero.

CONCLUSIONS

TSH serum concentrations were positively associated with Persistence and Self-Directedness and negatively associated with Harm Avoidance and Neuroticism. These relationships suggest that higher TSH is associated with more adaptive personality profile (Spittlehouse et al., 2014).

• These relationships were independent on the levels of peripheral thyroid hormones (FT3, FT4, TT4). Hence, TSH personality correlations obtained are more likely to be associated with central but not peripheral thyroid function.

• Our data supports the hypothesis that decrease in serum TSH could represent the endophenotype associated with maladaptive personality profile.

REFERENCES


The authors declare that they have no conflict of interest regarding this research.