

Psychoendocrinology (Thyroid hormone) and early psychosis : Preliminary findings

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Background

Environmental factors are acknowledged as key determinants of development of schizophrenia. Studies suggest that the altered expression of genes and proteins involved in numerous neurodevelopmental, metabolic, and neurotransmitter pathways can result from inadequate amounts of modulators, transporters and synthesizers.

Thyroid hormone is a possible link between genes and environment (1). Its dysfunction is known during antipsychotic treatment, (2) malignant neuroleptic syndrome, (3) treatment resistant and chronic schizophrenia,(4,5). It is regulated by HPA axis, which is widely implicated endocrinal abnormality in psychosis. Molecular and genetic studies suggest that thyroid hormone receptor is necessary to mediate developmental effect of thyroid hormone(6). It is plausible neuromodulator bridging genes and environment. Thyroid hormones also regulate the expression of many neurotransmitters, their synthesizing enzymes, and receptors. This study examines the status of the thyroid hormone in an early psychosis cohort, based on the hypothesis that thyroid levels may explain the complex neurochemistry and psychopathology of psychosis.

Method:

This is a cross-sectional pilot study of early psychosis in a naturalistic setting. Patients were selected from an early psychosis program and its admitting unit. Thyroid hormone levels were obtained from the routine database. We examined the correlations with psychopathological parameters using the Positive and Negative Syndrome Scale (PANSS) in a cohort of primary psychosis as per DSM IV criteria. Data was analyzed using SPSS.

Results:

In a cohort of 60 patients, 43 showed significant hypothyroid state (mean TSH = 5.2 mU/L). The mean level of TSH did not show any statistically significant correlation with the PANSS total score and the duration of illness (not duration of untreated psychosis). However, the level of TSH did show a positive correlation with the

negative symptoms scale ($p < 0.03$).

Conclusions:

A significant positive correlation with negative symptoms indicates that hypothyroid state may be a symptom concomitant explaining co-existence of depressive and negative symptoms in some patients at least. This likely has implications for psychiatric management in both the short and long term. Large, controlled studies are required to test this hypothesis. Future research in this area may help to explain the psychoendocrinological complexity in psychosis.

References

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