

Cognitive performance, psychiatric symptoms, and health related quality of life in patients with Graves' disease

Clinical and MR spectroscopic abnormalities

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ABSTRACT

This PhD project was carried out during my employment as a research assistant at the Memory Disorders' Research Unit, Copenhagen University Hospital, H:S Rigshospitalet, Denmark.

In the acute phase of Graves' disease patients often have both thyrotoxic and neuropsychiatric symptoms. The main purpose of the present study was to characterize and quantify the occurrence of cognitive and psychiatric symptoms in patients with Graves' disease, before and after anti-thyroid medical treatment. Furthermore to examine health-related quality of life (HRQOL) and finally, to examine possible pathophysiological mechanisms behind the development of symptoms.

We initiated a prospective cohort study examining 31 consecutively referred newly diagnosed and untreated Graves' patients as compared to 34 age-, sex-, and education-matched healthy volunteers. Cognitive performance was assessed with an extensive neuropsychological battery. Hamilton Depression Scale, Hamilton Anxiety Scale, and Bech-Rafaelsen Mania Scale characterized psychiatric symptoms. HRQOL was assessed with Medical Outcome Study 36-item Short-form Health Status Survey (SF-36). Cerebral metabolite concentrations were acquired with localized short echo time magnetic resonance spectroscopy (MRS). We plan to conduct a long-term longitudinal follow-up of the patients in the present cohort. The present PhD dissertation deals primarily with the results from the initial investigation.

Patients with newly diagnosed and untreated Graves' disease had significantly higher scores of depression, anxiety and mania, while cognitive performance was similar to that of the healthy volunteers. In the thyrotoxic phase patients had impaired quality of life, in physical, mental and social dimensions. Based on MRS we found that the thyrotoxic patients had significantly reduced total choline and myo-Inositol. MRS abnormalities correlated significantly with impaired thyroid function, while we found no correlation between MRS abnormalities and psychiatric symptoms or cognitive performance.

The subjective cognitive complaints in the acute toxic phase most likely reflect the level of thyrotoxic and psychiatric manifestations at this point. The MRS abnormalities found are thought to be an indirect neurobiological correlate to the psychiatric symptoms in the acute phase of Graves' disease, supporting the evidence that thyroid hormones affect the brain.

Future studies are needed to focus on the prevalence of and pre-

dictors for long-term neuropsychiatric symptoms and HRQOL in patients with Graves' disease. Studies examining the MRS abnormalities in patients with Graves' disease and long-term neuropsychiatric complaints are needed to further examine the implication of the MRS findings in our study.