

Poster presentation

The impact of hypothyroidism on neurocognitive functioning: A model of neuroplasticity in the mature adult human brain

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Background

Hypothyroidism (HYPO) has been shown to interfere with cognitive function; the extent of this dysfunction, particularly mild hypothyroidism (SCH), varies considerably. It is hypothesised that specific memory deficits associated with hypothyroidism will be resolved following treatment with L-thyroxine.

Materials and methods

To address these questions we performed a battery of neuropsychological tests to investigate differences of HYPO and SCH patients, and compare this to age-matched controls at baseline and 3 months. The tasks specifically examine learning and memory, attention and general intelligence: focusing particularly on the assessment of executive functions (primarily PFC-mediated) and memory function (primarily HF-mediated).

Results

Verbal memory deficits are evident between the groups on the CVLT at baseline where both SCH and HYPO participants are significantly different from the controls. Significant differences are also seen in associative memory using the Face-Name task. In addition spatial memory deficits were evident in the Rey Figure ($p < 0.05$). However in the working memory tasks, there were no differences found using the Stroop task and the N-Back task. Depression scores were also significantly different between the groups using the BDI ($p < 0.05$). For the HYPO, many of these tests

do not return to within the normal range by the 3 month follow-up, although the SCH seem to normalize by 3 months.

Conclusions

The results would suggest that deficits seen at baseline in hypothyroidism are not problems with working memory. They suggest that there is a more specific deficit associated with this disease.

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