

GROWTH HORMONE DEFICIENCY FOLLOWING BRAIN INJURY MAY NEGATIVELY IMPACT ACTIVITIES OF DAILY LIVING

Approximately 20% of people with brain injury (BI) also suffer from post-traumatic growth hormone deficiency (GHD). Individuals with GHD experience fatigue, increased abdominal adiposity, reduced exercise capacity, memory impairments, inability to concentrate, anxiety and depression. These symptoms overlap considerably with deficits commonly observed in patients with BI. The objective of this study was to determine if patients with BI who were also GHD actualized less recovery in rehabilitation than individuals who had a BI and were not GHD. Upon admission into the rehabilitation facility, basal hormone levels were assessed. Blood levels of thyroid (TSH, T3 and T4), follicle stimulating hormone (FSH), luteinizing hormone (LH), cortisol (AM level), testosterone, estradiol and insulin-like growth factor-1 (IGF-1) were measured. It has been documented that low levels of IGF-1 increase the likelihood of GHD. For patients whose IGF-1 level was less than 200 ng/mL, a provocative glucagon stimulation test was conducted to investigate GH levels.

Glucagon stimulation tests were subsequently completed in 41 individuals with BI. Of these, 21 patients had deficient levels of GH. These 21 patients did not receive GH replacement prior to discharge from the rehabilitation facility. Preliminary results indicate patients who were GHD, did not actualize as much change per day on the Independent Living Scale (ILS), a measure of functional activities of daily living, as patients who had normal GH levels ($p < 0.05$). There were no differences in level of disability or ILS scores at admission between the GHD and GH normal patients. Patients who were GHD did have a slightly longer length of stay than the GH normal group, although this difference did not reach statistical significance. These results support previous findings that concomitant GHD can negatively influence recovery from brain injury.