

RESEARCH SUMMARY:

Fatigue after TBI: Association with neuroendocrine abnormalities

The Question: Do people with fatigue after brain injury have problems with substances (hormones) that are released in the body which tell organs and cells how to work? In particular, we are looking at problems with substances released from the pituitary, (at the base of the brain), thyroid (in your neck), and adrenal (on top of your kidneys) glands which are part of the neuroendocrine system.

Past Studies show that between 50-80% of individuals with traumatic brain injury (TBI) have problems with fatigue. Fatigue has been found to be related to depression and sleep disorders. There may also be neuroendocrine problems that may follow a TBI. In particular, the pituitary gland may become damaged and not operate properly. Hypopituitarism (poor functioning of the pituitary gland) may be present in up to 68% of people after a TBI. Past studies have not looked at the possible relationship between these types of problems and fatigue after TBI.

This study focused on 64 individuals with TBI who volunteered for a fatigue study. They completed questionnaires and had blood samples taken to check for problems with their pituitary, thyroid, and adrenal functioning. They were interviewed using common tests that are used for fatigue. The blood tests looked at possible issues relating to growth hormone and other important hormones.

The researchers found that more than two thirds of the individuals tested were experiencing a lot of fatigue. There was some sort of hormone problem in 90% of the people. Individuals who had high growth hormone levels also had higher fatigue. This was not expected. It had been thought that low growth hormone would be found when people had a lot of fatigue. They also found that people with a lot of fatigue had low levels of a hormone released from the adrenal gland (cortisol). This was not a surprising result.

Who May Be Affected By These Findings: Individuals with traumatic brain injury, caregivers and family members, rehabilitation personnel, researchers

Caveats: Participants in this study had an active concern regarding fatigue and so they may not be similar to all individuals with TBI (selection bias). The tests used to measure fatigue were not specifically designed for individuals with TBI. The study could be replicated with a larger sample size.

Bottom Line: Ninety percent of the individuals with TBI tested had some sort of hormone problem (neuroendocrine abnormality). While the relationship between fatigue and hormone levels in the pituitary, thyroid, and adrenal is not clear, individuals who have had a TBI may want to consider being screened for low functioning of the pituitary, especially thyroid hormones and cortisol, which are easily replaced.

Find This Study:

Bushnik, T., Englander, J., & Katznelson, L. (2007). Fatigue after TBI: Association with neuroendocrine abnormalities. *Brain Injury*, 21(6), 559-566.