

Traumatic Brain Injury and Pituitary Dysfunction: Manifestations of a Chronic Disease

For the last 17 years we studied pituitary dysfunction that developed after both moderate to severe and mild traumatic brain injury (TBI). The most common pituitary hormone affected is growth hormone (GH), occurring in approximately 20% of the cases. Our ongoing studies have led us to the hypothesis that in susceptible individuals, TBI will induce a chronic inflammatory state in the brain that results in a chronic disease with varying symptoms and manifestations of which one is pituitary dysfunction and GH deficiency. The symptoms associated with TBI and GH deficiency fall in two main categories- fatigue and cognitive dysfunction. The fatigue is profound, incapacitating and many times will cause a reduction in a person's ability to perform their job or attend school. The cognitive dysfunction is comprised of 3 major complaints- reduced processing speed index, short term memory problems and loss of executive function. Replacement of GH will result in improvement in the fatigue in approximately 3 months and improvement in the cognitive function at 4-6 months. We also are finding abnormalities in essential amino acid absorption in patients up to 25 years after a moderate to severe TBI as further evidence that this is an ongoing chronic disease with multiple clinical manifestations. We are trying to understand the mechanism of the chronic inflammatory state with a current study assessing fMRIs and blood brain flow studies in mild TBI patients with fatigue with and without GH deficiency. As we better define this chronic disease and understand its mechanism, we hope to increase the awareness of this disease and develop therapies to treat it.