

The importance of endocrinologic assessment after traumatic brain injury

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Several clinical studies showed that traumatic brain injury (TBI) can determine hypopituitarism, with a prevalence that remains underestimated. At least 10-15% of TBI can be complicated with panhypopituitarism or hypopituitarism, meaning that thousands of individuals are affected worldwide. Post-concussion syndrome (including headache, irritability, loss of memory, depression, fatigue, cognitive alteration – symptoms that affect the quality of life) is very frequent in the acute phase after TBI (around 30% of cases) and the clinical signs are very similar to those of panhypopituitarism; if pituitary hormone deficiencies are a common etiology, it means that the rehabilitation of these patients is suboptimal unless the disorder is recognized and treated.

In this viewpoint article, the Italian authors discuss the problem of screening for pituitary disorder in all TBI patients, in terms of clinical and economical benefit. It is underscored that the onset of hypopituitarism is not related either to the severity of trauma, or to age and sex. It is clear that diagnosis or hormone-replacement treatment are of no benefit to severe patients being in a persistent vegetative state; on the other hand, many minor head traumas are followed by different degrees of hypopituitarism that remain underdiagnosed, because physicians are not aware of the problem or because the patients forget even to mention the trauma. Focusing on moderate and severe head trauma, the authors propose some guidelines for screening patients for TBI-related hypopituitarism.

During the immediate post-TBI period, in the setting of acute hypopituitarism (diabetes

insipidus, electrolyte imbalances), the endocrine examination is mandatory. The same is true for patients who develop such overt symptoms many years after TBI. Other symptoms than diabetes insipidus may develop 3-6 months after TBI, being potential cases of TBI-related hypopituitarism: hypogonadism (menstrual disturbances in women, loss of libido and impotence in men) or metabolic disorders (secondary metabolic syndrome with weight gain, dyslipidemia and insulin resistance) as a consequence of growth hormone deficiency. The third and most important category are children and adolescents who should always be screened for pituitary insufficiency after head trauma, considering the potential risk of reduced height, slow growth rate or pubertal retardation if the disorder is not recognized. For all these cases, the hormone replacement therapy could be of significant benefit.

As for the timing of endocrine evaluation, it is suggested that patients with TBI should be prospectively evaluated 3-6 and 12 months after injury, in order to diagnose all chronic alterations in pituitary status. On the other hand, the status of pituitary gland immediately after TBI is not yet known and there were noticed transient changes in its function. It is not very clear to what extent this dysfunction affects the long term survival and recovery of the patients.

The authors conclude that, although TBI is frequently associated with hypopituitarism, it is not cost-effective to screen all patients after head trauma but, instead, to have a case-finding approach in selecting patients for screening. The most important thing for all physicians is to be aware of this complication which still remains overlooked now.

Comment on the paper:

Aimaretti G, Ghigo E – Should every patient with traumatic brain injury be referred to an endocrinologist? *Nature Clinical Practice Endocrinology & Metabolism* 2007; vol 3 (4):318-319