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Post-traumatic head injury pituitary dysfunction

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Abstract

Partial or complete pituitary dysfunction affects 33-50% of all traumatic brain injury (TBI) survivors and is a significant contributor to the overall disability burden. The hypophyseal vessels are anatomically vulnerable to shearing injuries, raised intracranial pressure and anterior base of skull fractures, and pituitary ischaemia or haemorrhage is a common finding at autopsy. Post-traumatic hypopituitarism (PTHP) can affect all grades of severity of injury and is often difficult to diagnose, as its features largely overlap with common post-concussive symptoms. PTHP has a wide range of manifestations, including fatigue, myopathy, cognitive difficulties, depression, behavioural changes or life-threatening complications such as sodium dysregulation and adrenal crisis. In some instances, mild PTHP can recover, at least partially, but cases of late onset are also known. At present, there is no consensus on whether all TBI patients should be screened (including mild TBI) and at what time points, given that neuroendocrine tests in the acute phase are simply likely to reflect a non-specific trauma response rather than true pituitary damage and that the time course of PTHP is unclear. A full investigation of the hypothalamic-pituitary axis requires specialized neuroendocrine assessment, including stimulation tests, as random hormone levels can be misleading in this context. Given the high incidence of TBI, this may have significant resource implications for Endocrinology services but, on the other hand, patients with PTHP may receive suboptimal rehabilitation unless the underlying hormone deficiency is identified and treated.