

Convergence insufficiency in brain-injured patients.

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Abstract

Disorders of eye movements are relatively common in brain-injured patients. Some of these disturbances are caused by direct trauma to the orbital content, cranial nerves and other brain areas. Convergence, which is a part of the near-vision complex and depends on the integrative function of the cortical and subcortical areas, is commonly affected by traumatic brain injury. Intact vergence needs the integrative function of brain structures associated with acquisition of information on one side and intact mesencephalic function, including function of a vergence integrator, and their interconnections. Clinical investigation of vergence function in 26 traumatically brain-injured patients examined as early as possible after trauma revealed disturbances in over a third of the examinees. A follow-up of 72 patients some 3 years after injury revealed vergence insufficiency in 42%. Convergence insufficiency was associated with longer periods of coma (p less than 0.001), presence of cognitive disturbances (p less than 0.005) and patients' failing to find work in the open market (p less than 0.01). It is suggested that the presence of disturbed vergence several years after trauma, and its close association with prolonged coma and cognitive disturbances, is an expression of permanent damage to mesencephalic and cortical brain structures and can serve as an important aid in evaluation of these patients. This paper describes the close relationship between vergence state and over-all rehabilitation outcome as evaluated by patients' occupational status.