



Traumatic Brain Injury Classification Systems: GCS, Marshall, and Mayo Classifications

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Abstract

Traumatic brain injury as a neurological insult due to trauma is a common cause of referring to the emergency wards. There are various causes for traumatic brain injury occurrence like motor vehicle accidents, falls, blunt trauma etc. To classify the traumatic brain injury, there are various classification systems. This is a brief review on three classification systems for traumatic brain injury.

Keywords: Traumatic Brain Injury – GCS; Marshall; Mayo Classification

Mini Review

In the Glasgow Coma Scale (GCS) system, the patients with traumatic brain injury would be classified into three groups. Patients with mild injury have GCS scores from 13 to 15. Ones with moderate injury have GCS scores from 9 to 12 and the patients with severe injury have GCS scores which are less than 8. This scale is composed of three tests including eye, verbal and motor responses. In Marshall classification system, in Diffuse injury I, there is no pathology which can be visible on CT. In Diffuse injury II, cisterns can be seen with midline shift ranged from 0 to 5 millimeters. Lesion densities may be present or not but there is no lesion which its size would be more than 25 cubic centimeters. In Diffuse injury III, there is no lesion which its size would be more than 25 cubic centimeters and the midline shift would range from 0 to 5 millimeters either although the cisterns are compressed and may be absent to be seen. In Diffuse injury IV, there is no lesion which its size would be more than 25 cubic centimeters either, but the midline shift would be more than 5 millimeters. Evacuated mass lesion V is related to any lesion which would surgically be evacuated. No evacuated mass lesion VI is related to a lesion which its size would be more than 25 cubic centimeters and would not be surgically evacuated [1-3]. In Mayo classification system, traumatic Brain Injury can be classified into moderate to severe, mild, and possible ones. Evidence of hemorrhage, hematoma or contusion, posttraumatic amnesia lasts for more than 24 hours, Loss of consciousness lasts for more than 30 minutes, Worst GCS score less than 13 in first 24 hours after the injury which is not because of intoxication or sedation and expiring the patient are the criteria for moderate to severe traumatic brain injury. Loss of consciousness lasts for less

than 30 minutes, posttraumatic amnesia lasts for less than 24 hours and the presence of basilar, depressed or linear skull fracture are the criteria for mild traumatic brain injury. The criteria for possible traumatic brain injury would be the presence of one or more of these symptoms after trauma including headache, confusion, nausea, dizziness, blurred vision and having dazed feeling. Having knowledge about various classification systems for traumatic brain injury is of importance to approach the affected patients appropriately specifically in neurocritical settings [4-6].

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