- predicting outcome after TBI can help guide acute & chronic care & help prepare the family for a typically protracted recovery process
- equally important is that further treatment may be deemed futile & expensive critical care and surgery can thus be reserved for patients who will benefit

- several clinical and radiological characteristics have proved useful for outcome prediction but they must be used in concert. These criteria are more useful for predicting death or vegetative state than for accurately predicting mild or no dysfunction
- the most powerful outcome predictors are:
  (i) age
  (ii) Initial GCS score
  (iii) pupil size and reaction to light
  (iv) ICP
  (v) nature & extent of intracranial injuries

- old age correlates most consistently with a poor outcome after traumatic brain injury
- traumatic coma data bank study of 700 patients with severe TBI showed that among patients older than 60 years the incidence of death, persistent vegetative state or severe disability was 92%, 86% for those older than 56 and 50% for younger patients
- older patients are more likely to have traumatic intracranial mass lesions & the presence of these insults strongly correlates with poor outcome
- subsequent studies have demonstrated the low probability of a good recovery for patients older than 60 whose initial GCS is <8

- the second most important predictor of outcome is the initial post-resuscitation GCS score. Among patients with a severe closed head injuries in the traumatic coma data bank study, good outcomes occurred in 4.1% of those with an initial GCS of 3, in 6.3% whose score was 4 and 12.2% whose score was 5

- unilateral or bilaterally dilated pupils that are unreactive to light usually reflect uncal herniation and significant brainstem compression and damage
- several large clinical studies have found that patients with bilaterally fixed and dilated pupils had a greater than 90% likelihood of death or vegetative state

- intracranial hypertension refractory to medication is associated with a 43% mortality rate and a 0% chance of functional outcome

- subdural haematoma:
  - subdural haematoma is associated with the worst prognosis
  - one study found only 26% of patients with these clots had a functional recovery
  - prognosis is related to how rapidly the clot is evacuated with the best outcomes occurred in patients who have surgery within 2 hours

- extradural haematoma:
  - pose a much lower risk of mortality than SDH because they are not usually associated with underlying cerebral contusion and swelling
  - mortality depends a great deal on time to surgery; untreated lesions can lead to uncal herniation and death
  - mortality increases from 17-65% if an extradural haematoma is not evacuated within 2 hours after the onset of coma

- traumatic subarachnoid:
  - the presence of traumatic subarachnoid haemorrhage is associated with a greater than 50% risk of death; however, many believe that this condition is merely a marker of more severe brain injury and has no direct association with outcome