anticholinergic overdose–associated cardiac arrhythmias. The use of benzodiazepine antagonists offers some prospect of improvement after overdose of soporific drugs and has transient benefit in hepatic encephalopathy. Certain other toxic and drug-induced comas have specific treatments such as fomepizole for ethylene glycol ingestion.

Administration of hypotonic intravenous solutions should be monitored carefully in any serious acute brain illness because of the potential for exacerbating brain swelling. Cervical spine injuries must not be overlooked, particularly before attempting intubation or evaluation of oculocephalic responses. Fever and meningismus indicate an urgent need for examination of the CSF to diagnose meningitis. If the lumbar puncture in a case of suspected meningitis is delayed, an antibiotic such as a third-generation cephalosporin may be administered, preferably after obtaining blood cultures. **The management of raised ICP is discussed in Chap. 330.**

PROGNOSIS

One hopes to avoid the difficult outcome of a patient who is left severely disabled or vegetative. Children and young adults may have ominous early clinical findings such as abnormal brainstem reflexes and yet recover; temporization in offering a prognosis in this group of patients is wise. Metabolic comas have a far better prognosis than traumatic ones. All systems for estimating prognosis in adults should be taken as approximations, and medical judgments must be tempered by factors such as age, underlying systemic disease, and general medical condition. In an attempt to collect prognostic information from large numbers of patients with head injury, the Glasgow Coma Scale was devised; empirically, it has predictive value in cases of brain trauma **(see Table 457e-2)**. For anoxic and metabolic coma, clinical signs such as the pupillary and motor responses after 1 day, 3 days, and 1 week have been shown to have predictive value. Other studies suggest that the absence of corneal responses may have the most discriminative value. The absence of the cortical waves of the somatosensory evoked potentials has also proved a strong indicator of poor outcome in coma from any cause.

The uniformly poor outcome of the prolonged vegetative state has already been mentioned, but recent reports that a small number of such patients display consistent cortical activation on functional MRI in response to salient stimuli have begun to alter the perception of the possible internal mental milieu of such individuals. These findings do not change the poor prognosis. For example, in one series, about 10% of vegetative patients after traumatic brain injury could activate their frontal or temporal lobes in response to requests by an examiner to imagine certain visuospatial tasks. In one case, a rudimentary form of communication could be established. There are also reports in exceptional patients of improvement in cognitive function with the implantation of thalamic-stimulating electrodes. It is prudent to avoid generalizations from these findings.