Mediquiz

Series - 10

Traumatic Brain Injury

Rudrajit Paul
Quiz Master

Look at the following statements and mark which of them are true and which are false : —

1. Secondary decompressivecraniectomy (DC) for late rise of intracranial pressure (ICP) after traumatic brain injury (TBI) is recommended to improve outcome.

2. Therapeutic hypothermia is recommended in diffuse brain injury.

3. High dose methylprednisolone may improve outcomes in raised ICP after TBI.

4. Hyperventilation early after TBI may help in improving mortality.

5. LMW heparin for DVT prophylaxis is absolutely contraindicated after TBI with some evidence of contusions in CT scan.

6. Phenytoin is recommended early after TBI to prevent seizures.

7. Early initiation of feeding is one of the effective means of reducing mortality after TBI.

8. ICP monitoring and management based on ICP levels is beneficial after TBI.

Match the parameters in 1st column with the values in second column : —

9. ICP level (in mm of Hg) for treatment target	**A. 40**
10. Optimum jugular venous saturation (in %)	**B. 22**
11. Age of patient above which ICP monitoring is recommended	**C. 70**
12. Optimum cerebral perfusion pressure after TBI	**D. 50**

13. Antimicrobial impregnated catheters are now used for external ventricular drainage (done to reduce ICP) to reduce chance of infection. Different companies have come up with different types of catheters. What is/are the antibiotics which are impregnated in such catheters?

a. Rifampicin
b. Minocycline
c. Linezolid
d. Triclosan
e. Clindamycin
f. Gramicidin

14. Mannitol is an effective drug to reduce raised ICP. However, different clinicians use different doses. What is the recommended dose of Mannitol to reduce ICP?

a. 0.5-1 g/Kg/day
b. 1.5-2 g/Kg/day
c. 1.5—2 g/Kg over a short period
d. 0.5-0.75 g/kg over a short period

(Answer : next page)

Answer : Mediquiz

1. True.

After publication of results of the **RESCUEicp** trial, it is now recommended that late rise of ICP (after 3 days) after brain injury may also be treated with DC. In this trial, it was seen that the benefits of late DC were evident at 6 and 12 months post surgery.

2. False.

Therapeutic hypothermia did not improve outcomes after TBI.

3. False.

High dose steroids have no role in lowering ICP after TBI and rather, it increases mortality. The CRASH trial tried to study methylprednisolone use early after TBI. But halfway through the study, it was found that mortality in the steroid arm was higher compared to placebo (21.1% vs 17.9%, P = 0.0001).

4. False.

Early after TBI, cerebral blood flow may be reduced. At this juncture, hyperventilation may further jeopardize this blood flow.

5. False.

LMW heparin may be used if the benefit is found to outweigh the risks. There is definitely a risk of cerebral haemorrhage expansion but in stable patients LMWH may be given if the risk of DVT is very high (E.g. malignancy, prior history of DVT)

6. True.

Studies have shown that phenytoin used prophylactically can prevent early (first 7 days) post-traumatic seizures. However, after 7 days, the prophylactic use of anti-epileptics is of doubtful benefit.

7. True.

Feeding, especially enteral feeding, is important to prevent death.

8. True.

ICP monitoring can be a useful tool to guide treatment decisions. ICP values and CT imaging findings are to be used together.

9. B

10. D

11. A

12. C

13. A, B, D, E.

These are some of the antibiotics which have been used to coat catheters in different trials. So far, all have been found to be useful.

14. C

Mannitol boluses are preferred over continuous infusion or prefixed dosing. This method will have less chance of osmotic damage. The peak effect of mannitol on ICP occurs by 30-45 minutes and lasts up to 6 hours. There is some controversy regarding the dose of mannitol after TBI. A 2005 Cochrane review concluded that high dose mannitol reduced mortality more than the conventional dose (0.5—1 g/Kg). However, it must be remembered that mannitol is preferred only for short term management of raised ICP. It is not useful for long term treatment and may rather cause harm.