Frågor Örebro

Cerebral physiology

5. Appropriate statements regarding cerebrovascular autoregulation

include:

(a) Cerebral autoregulation is mediated by the precapillary resistance

vessels.

(b) Cerebral autoregulation occurs within 10 s of change in arterial

blood pressure.

(c) The normal autoregulatory range of mean arterial blood pressure

is 50–150 mm Hg.

(d) In the graph demonstrating the effect of mean arterial blood

pressure on cerebral blood flow there is a shift to the right of

normal after cervical sympathectomy.

(e) In Shy–Drager syndrome and systemic amyloidosis there is

dysautoregulation.

6. Appropriate statements regarding cerebrospinal fluid include:

(a) Cerebrospinal fluid is produced by the arachnoid granulations.

(b) Cerebrospinal fluid makes up .20% of intracranial volume.

(c) Obstruction to cerebrospinal fluid outflow is compensated by

decreased cerebrospinal fluid production.

(d) The pH of cerebrospinal fluid varies remarkably and mimics

changes in systemic pH.

(e) Cerebrospinal fluid is a component of the compensatory mechanism

that prevents an acute increase in intracranial pressure

caused by an enlarging haematoma.

7. Appropriate statements regarding cerebral pathophysiology

include:

(a) After head injury, cerebral perfusion pressure should be maintained

above at least 70 mm Hg.

(b) After subarachnoid haemorrhage, induced hypertension is used

to treat cerebral vasospasm.

(c) Brain-injured patients should not be routinely hyperventilated

to below PaCO2 4 kPa.

(d) Hyperoxia of PaO2 .26 kPa improves short-term outcome and

decreases mortality after brain injury.

(e) In patients with traumatic brain injury, induced hypothermia

decreases cerebral blood flow and is associated with improved

Glasgow Coma Scale score on discharge from critical care.

8. Appropriate statements regarding cerebral blood flow and metabolism

include:

(a) For every 18C decrease in brain temperature, cerebral metabolic

rate decreases by approximately 7% of the cerebral metabolic

(b) Cerebral metabolic rate is expected to be constant across the

various brain regions.

(c) Cerebral blood flow increases within 1 min of increased brain

activity.

(d) Forty per cent of the energy produced by aerobic metabolism in

the brain is used for functional activity of the neurones.

(e) Sevoflurane 2% does not uncouple cerebral blood flow from

cerebral metabolic rate.

Traumatic brain injury: an evidence-based

review ofmanagement

1. Immediately after traumatic brain injury:

(a) A single episode of hypotension (systolic pressure

,90 mm Hg) is associated with a doubling of mortality.

(b) Patients with a deteriorating conscious level, such as a

reduction in motor score of .2 points, should be intubated

before transfer to a neurosurgical unit.

(c) An immediate computed tomography (CT) scan is indicated

if the patient’s Glasgow Coma Scale (GCS) score is ,13 on

arrival in the emergency room.

(d) The initial resuscitation process should focus on establishing

a clear airway before treating the brain injury.

(e) The GCS is used to assess severity of brain injury before

resuscitation.

2. Appropriate statements regarding anaesthesia for trauma craniotomy

include:

(a) A modified rapid sequence induction is rarely performed

since it is likely to lead to an increase in intracranial pressure.

(b) To avoid displacement of the tracheal tube, a tie should be

applied firmly around the patient’s neck.

(c) To optimize intraoperative cerebral perfusion, partial pressure

of arterial carbon dioxide (PaCO2

) should be maintained

between 4.0 and 4.5 kPa.

(d) In patients undergoing trauma craniotomy, total intravenous

anaesthesia with propofol is associated with lower mortality

than either isoflurane or sevoflurane anaesthesia.

(e) Neurosurgical intervention is necessary in one-third of

patients with moderate or severe traumatic brain injury.

3. Appropriate statements concerning patients with traumatic brain

injury in the critical care unit include:

(a) A cerebral perfusion pressure of 70–90 mm Hg is

recommended.

(b) Management algorithms have reduced mortality rates both in

intensive care and in hospital.

(c) Pharmacological thromboprophylaxis is often avoided within

24 h of injury.

(d) Seizure activity increases the risk of secondary brain injury.

(e) Tight glycaemic control (blood glucose 4.5–6.0 mmol litre21)

is associated with reduced mortality.

4. In a patient with a severe traumatic brain injury:

(a) Intracranial pressure is reduced by hyperventilation to a

PaCO2

,4.0 kPa.

(b) Intracranial pressure is reduced by saline 5%.

(c) Intracranial pressure is necessary to calculate cerebral

perfusion pressure.

(d) Monitoring of intracranial pressure is necessary in patients with

severe traumatic brain injury undergoing non-neurosurgical

procedures such as fixation of a long bone fracture.

(e) Intracranial pressure should be treated