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Question: 1803

A patient develops intracranial hypertension after trauma. Best initial intervention?

A. Hypotension induction
B. Anticoagulation
C. Fluid overload
D. Elevate head and optimize ventilation
E. Steroid use routinely

Answer: D

Explanation: First step is optimizing cerebral venous drainage and oxygenation.

Question: 1804

A patient with a history of chronic alcoholism is admitted for status epilepticus. After initial stabilization with benzodiazepines, the clinician chooses an AS**D.** Which agent requires the co-administration of Thiamine to prevent the exacerbation of Wernicke's encephalopathy during the metabolic stress of seizures?

A. Carbamazepine
B. Phenobarbital
C. Levetiracetam
D. Phenytoin
E. Valproate

Answer: D

Explanation: Seizures themselves are metabolically demanding, but phenytoin specifically has been associated with interfering with thiamine metabolism or utilization. While thiamine should be given to all alcoholic patients in the ICU, the relationship between glucose loading, phenytoin, and thiamine is a

classic board pearl for preventing Wernicke's.

Question: 1805

In a patient with Acute Inflammatory Demyelinating Polyneuropathy (AIDP), which of the following CSF findings is most characteristic?

A. Numerous oligoclonal bands
B. Presence of xanthochromia
C. Pleocytosis with > 50 cells/μL
D. Albuminocytologic dissociation
E. High glucose and low protein

Answer: D

Explanation: Albuminocytologic dissociation is the hallmark of GBS/AIDP, characterized by an elevated CSF protein level with a normal white blood cell count (< 5 cells/μL). This finding may be absent in the first week of symptoms but is present in the majority of patients by the second week.

Question: 1806

A 62-year-old woman with AKI is started on vancomycin and piperacillin-tazobactam. Her kidney function declines further over 48 hours. Which pharmacologic principle should guide antibiotic management?

A. Renal impairment rarely affects antibiotic exposure
B. Dose and interval adjustment are needed to avoid accumulation
C. Antibiotic concentrations are unrelated to neurotoxicity
D. Higher doses are always safer in AKI
E. Only liver function matters for antibiotic clearance

Answer: B

Explanation: Altered renal clearance in AKI affects the pharmacokinetics of many antibiotics, requiring

dose and interval adjustment to avoid toxicity. Overexposure can cause neurotoxicity, nephrotoxicity, or both, depending on the agent. This is especially important in neurocritical care where changes in mental status can be misattributed to the brain injury itself. Careful drug selection and renal dosing are therefore essential.

Question: 1807

A patient with severe TBI and refractory intracranial hypertension develops sudden pulmonary edema. The heart rate is 120 bpm and the blood pressure is 190/110 mmHg. Pulmonary artery catheterization reveals a PAOP of 10 mmHg and a high cardiac output. What is the primary management for this condition?

A. Urgent cardiac catheterization for suspected MI
B. Starting a dobutamine infusion for inotropic support
C. Aggressive reduction of intracranial pressure
D. Initiation of an esmolol drip for heart rate control
E. Administration of high-dose intravenous diuretics

Answer: C

Explanation: This is a classic description of Neurogenic Pulmonary Edema (NPE). The hallmark is a low or normal PAOP (wedge pressure) despite pulmonary edema, which distinguishes it from cardiogenic causes. It is triggered by a massive sympathetic surge following CNS injury. The primary treatment is to address the underlying neurological insult (reducing ICP) and provide supportive respiratory care (PEEP).

Question: 1808

A child with posterior fossa tumor develops decerebrate posturing. Most likely cause?

A. Sepsis
B. Liver failure
C. Peripheral neuropathy
D. Hypoglycemia
E. Brainstem compression

Answer: E

Explanation:
Posterior fossa tumors can compress brainstem structures causing severe neurologic deterioration and abnormal posturing.

Question: 1809

A 55 year old man with severe traumatic brain injury develops melena and hypotension after prolonged intensive care unit stay. Esophagogastroduodenoscopy reveals multiple shallow gastric erosions with diffuse oozing. Which mechanism most likely contributed to this condition?

A. Autoimmune destruction of gastric parietal cell populations
B. Mesenteric venous thrombosis causing bowel wall infarction
C. Portal vein thrombosis causing isolated gastric ischemia
D. Splanchnic hypoperfusion causing stress related mucosal injury
E. Hypergastrinemia from gastrinoma associated acid hypersecretion

Answer: D

Explanation: Stress related mucosal disease develops because of impaired gastric mucosal perfusion during critical illness. Neurocritical care patients are particularly susceptible due to elevated intracranial pressure, mechanical ventilation, and shock states.

Question: 1810

A patient develops serotonin syndrome. Which feature is most characteristic?

A. Bradycardia and miosis
B. Flaccid paralysis
C. Hypothermia
D. Dry skin only
E. Hyperreflexia and clonus

Answer: E

Explanation: Serotonin syndrome causes neuromuscular hyperactivity including clonus and hyperreflexia.

Question: 1811

A patient with severe TBI and refractory intracranial hypertension is receiving 3% hypertonic saline (HTS) as a continuous infusion. The serum sodium has risen from 140 mEq/L to 158 mEq/L over 24 hours. The patient's chloride level is 128 mEq/L. The patient develops a progressive non-anion gap metabolic acidosis (NAGMA). What is the most appropriate pharmacological adjustment?

A. Treat the acidosis with intravenous acetazolamide
B. Increase the rate of the 3% sodium chloride infusion
C. Initiate a sodium bicarbonate drip at 150 mEq/L
D. Change the hypertonic saline to a 50/50 mix of sodium chloride and sodium acetate
E. Discontinue osmotic therapy and switch to high-dose barbiturates

Answer: D

Explanation: Large volumes of sodium chloride-based hypertonic solutions provide a high chloride load, which can lead to hyperchloremic metabolic acidosis. Sodium acetate is metabolized to bicarbonate in the liver. Using a hypertonic solution that contains a portion of sodium acetate instead of pure sodium chloride can maintain the desired hypernatremia for ICP control while mitigating the hyperchloremic acidotic effect.

Question: 1812

A 52-year-old male with generalized myasthenia gravis (MG) is admitted for a community-acquired pneumonia. He is currently on pyridostigmine and prednisone. Within 24 hours, he develops severe dyspnea, bifacial weakness, and a weak cough. Laboratory studies show a $PaCO_2$ of 52 mmHg and pH of 7.28. Which of the following medications should be strictly avoided in this patient's acute management?

A. Azithromycin
B. Dexamethasone
C. Levetiracetam
D. Methylprednisolone
E. Piperacillin-tazobactam

Answer: A

Explanation: Many medications can exacerbate myasthenia gravis and potentially trigger a myasthenic crisis. Macrolide antibiotics, including azithromycin, erythromycin, and clarithromycin, are well-known to interfere with neuromuscular transmission and are contraindicated in MG patients, especially during respiratory compromise. Fluoroquinolones and aminoglycosides are similarly risky. While corticosteroids are used in MG, they can cause a transient worsening of weakness upon initiation, but they are not strictly contraindicated like the specific antibiotic classes mentioned.

Question: 1813

A 52-year-old woman with breast cancer presents with headache, nausea, and "electric shock" pains down her legs. MRI of the brain is negative. MRI of the spine shows thin, linear enhancement along the cauda equina nerve roots. CSF cytology is negative on the first lumbar puncture. What is the most appropriate next step?

A. Initiate empiric intrathecal chemotherapy
B. Proceed to whole-brain radiation
C. Start high-dose steroids and observe
D. Repeat MRI Brain with double-dose contrast
E. Perform a second lumbar puncture with a large volume of CSF

Answer: E

Explanation: The clinical picture and spine MRI are highly suggestive of Leptomeningeal Carcinomatosis (carcinomatous meningitis). CSF cytology has a sensitivity of only about 50% on the first tap. Sensitivity increases significantly (to >80-90%) with a second tap and by processing a larger volume of CSF (typically 10 mL or more).

Question: 1814

A 69-year-old woman with intracerebral hemorrhage and prolonged ileus has been NPO for 6 days. She remains intubated and has rising BUN, low prealbumin, and ongoing vasopressor use. Enteral access is not feasible. What is the most appropriate next step?

A. Continue withholding nutrition until bowel function returns
B. Use protein supplements without calories
C. Start enteral feeds through a standard oral diet
D. Give only dextrose-containing maintenance fluids
E. Begin total parenteral nutrition after careful line placement

Answer: E

Explanation: When enteral feeding is not feasible for an extended period and the patient remains unable to meet needs, parenteral nutrition becomes appropriate. In a patient with prolonged inability to use the gut, TPN can prevent cumulative calorie and protein deficits. Dextrose maintenance fluids do not provide adequate nutrition. Oral feeding is impossible in an intubated patient, and isolated protein without adequate delivery strategy does not solve the broader issue.

Question: 1815

A 70 year old man with TBI has ICP waveform showing rising plateau waves lasting several minutes with ICP reaching 50 mm Hg. What is this pattern called?

A. Lundberg A waves indicating critical intracranial hypertension
B. Brain death pattern
C. Normal respiratory variation
D. Venous sinus thrombosis pattern
E. Seizure related waveform

Answer: A

Explanation: Lundberg A waves are pathological sustained ICP elevations indicating severely reduced

intracranial compliance and risk of herniation.

Question: 1816

A 55-year-old man with status epilepticus and acute kidney injury requires a nondepolarizing paralytic for emergent intubation. His potassium is 5.8 mmol/L and the team wants to avoid histamine release and hemodynamic instability. Which drug is most appropriate?

A. Vecuronium
B. Pancuronium
C. Rocuronium
D. Cisatracurium
E. Succinylcholine

Answer: C

Explanation: Rocuronium is a common alternative to succinylcholine for rapid sequence intubation when hyperkalemia is present or likely. Succinylcholine should be avoided because it can worsen hyperkalemia, particularly in neurologic injury, denervation states, or prolonged immobilization. Pancuronium is longer acting and can increase heart rate, which is undesirable in many neurocritical patients. Cisatracurium is excellent for ongoing paralysis but is not the usual rapid-sequence choice when immediate intubation conditions are needed.

Question: 1817

A 69-year-old man is found with left gaze deviation, dense right hemiplegia, and global aphasia. His NIHSS is 22. Noncontrast CT shows no hemorrhage, CTA demonstrates an embolic proximal left MCA occlusion, and CT perfusion shows a small core with a large penumbra. He was last known well 2.5 hours ago, takes no anticoagulants, and his glucose is 126 mg/dL. What is the most appropriate acute reperfusion strategy?

A. Defer reperfusion because a visible core is present on perfusion imaging
B. Give aspirin first and reassess in 24 hours
C. Withhold all therapy because symptoms are already severe
D. Administer intravenous thrombolysis and proceed to thrombectomy evaluation

E. Perform decompressive hemicraniectomy before any reperfusion therapy

Answer: D

Explanation: This patient is within the standard thrombolysis window, has no hemorrhage, and has a proximal large vessel occlusion with salvageable tissue. Current stroke best practice supports intravenous thrombolysis when eligible and rapid endovascular therapy for proximal anterior circulation occlusion. A small core with a large penumbra is the classic setting in which reperfusion is most likely to help. Aspirin alone is insufficient in an eligible patient with a treatable occlusion.

Question: 1818

A 55-year-old male with a history of poorly controlled type 2 diabetes presents with a stroke. He is found to have DKA (pH 7.15, Anion Gap 22, Glucose 450 mg/dL). You start an insulin infusion. At what blood glucose level should you add dextrose to the IV fluids to prevent hypoglycemia and allow for the continued suppression of ketogenesis?

A. 400 mg/dL
B. 200 mg/dL
C. 300 mg/dL
D. 150 mg/dL
E. 100 mg/dL

Answer: B

Explanation: In the management of DKA, the insulin infusion must be continued until the anion gap is closed and the metabolic acidosis is resolved. To prevent hypoglycemia while the insulin is still running, 5% dextrose should be added to the IV fluids once the blood glucose reaches approximately 200-250 mg/dL.

Question: 1819

A 28-year-old male is admitted after being found hanging by a rope in an apparent suicide attempt. On arrival, his GCS is 6. A CT scan of the neck shows no cervical spine fracture, but a CT of the head

shows diffuse cerebral edema. His ICP monitor shows an opening pressure of 28 mmHg. Which mechanism best explains the primary neurological injury in this patient?

A. Direct transection of the spinal cord at the C2 level
B. Interruption of arterial flow via the vertebral arteries
C. Obstruction of venous outflow leading to stagnant hypoxia
D. Mechanical compression of the airway leading to asphyxia
E. Reflex bradycardia from carotid sinus hypersensitivity

Answer: C

Explanation: In "near-hanging" injuries, the primary mechanism of brain injury is typically not arterial occlusion (as the carotids require significant pressure to occlude) but rather the obstruction of the low-pressure venous drainage system (internal jugular veins). This leads to rapid venous congestion, stagnant hypoxia, and a massive increase in intracranial pressure. While airway obstruction and arterial compromise can occur, the venous outflow obstruction is the most common driver of the diffuse cerebral edema seen in survivors.

Question: 1820

Which paraneoplastic syndrome is characterized by anti-NMDA receptor antibodies and is most commonly associated with ovarian teratomas?

A. Brainstem encephalitis
B. Limbic encephalitis
C. Stiff Person Syndrome
D. Paraneoplastic Cerebellar Degeneration
E. Opsoclonus-Myoclonus Syndrome

Answer: B

Explanation: Anti-NMDAR encephalitis is a form of limbic encephalitis. It is the classic paraneoplastic syndrome associated with ovarian teratomas in young women.

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