Neurology trauma emergencies

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Trauma is a common reason for patients to present as an emergency in small animal practice. As well as the neurological trauma suffered, there is also the potential for multiple body systems to be affected, so it is important to take a multisystem approach when triaging and caring for these emergency patients. If the initial management of these patients is inappropriate, then it can have disastrous consequences for the patient.

ACUTE SPINAL CORD INJURY

The most common causes of acute spinal cord injury include: intervertebral disc disease, vertebral fractures, luxations, fibrocartilaginous embolism and congenital malformations causing instability (e.g. atlantoaxial subluxation). The acute onset of the injury is caused by one or more of the following processes: concussion, ischaemia, compression and laceration, which will all be discussed. When any acute spinal injury case presents, as with any emergency case, it is important that an initial triage is carried out to assess the airways, breathing and circulation. The aim is to stabilize the patient as much as possible. If a fracture, luxation or atlantoaxial subluxation is suspected, the patient should be put onto a spinal board or similar and moved as little as possible to reduce to risk of causing further damage to the spinal cord. Once the patient has been assessed and stabilized, the neurologist will perform a physical and neurological examination on the patient to localize the lesion and decide the best course of action.

HEAD TRAUMA

Patients who present for head trauma have normally been involved in one of the following incidents: road traffic accidents, a fall from height, kicks from horses or cattle, gunshot or pellet wounds or bites from other animals. A multisystem approach to the initial assessment must be considered (airway, breathing, circulation) and any life-threatening extracranial issues (e.g. penetrating thoracic/abdominal wounds or an airway obstruction) must be identified and treated. It is also important to be

aware that the majority of these patients will be in a state of hypovolaemic shock so is important to recognize and treat the hypovolaemia and hypoxaemia as soon as possible. Once initial stabilization has been achieved, it is important to look for any signs of raised intracranial pressure, which can include a Cushing's reflex (systemic hypertension and sinus bradycardia), anisocoria, mydriasis and altered mentation. The main aim for head trauma patients is to restore and maintain adequate tissue perfusion and to treat any shock or raised intracranial pressure.

KEY LEARNING OBJECTIVES

- Understand how to assess neurological trauma patients and prioritize treatment
- Recognize abnormalities when assessing major body systems and signs of raised intracranial pressure
- Understand and be confident in using the modified Glasgow coma scoring system

MULTIPLE CHOICE QUESTIONS

1. If you suspect a patient may have a spinal fracture or luxation what would you do when performing the initial assessment?
(A) Move the patient into a more comfortable position
(B) Keep the patient on a spinal board to prevent movement
(C) Position the patient in sternal recumbency
(D) Try to get the patient to walk
2. In addition to your initial assessment of airway, breathing and circulation what else do you need to consider with a head trauma patient?
(A) Decreased intracranial pressure, hypovolaemic shock
(B) Hypoxaemia, decreased intracranial pressure
(C) Raised intracranial pressure, hypovolaemia
(D) Tachycardia, hypoxaemia
3. Which of the following is a congenital malformation that can cause acute spinal cord injury?
(A) Fibrocartilaginous embolism
(B) Intervertebral disc disease
(C) Vertebral fracture
(D) Atlantoaxial subluxation