Triage of polytrauma

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Trauma is a common presenting complaint, with a third of trauma cases reported to have serious injuries. All trauma patients therefore require rapid assessment to allow early identification of life-threatening conditions and subsequent stabilization. A traditional major body systems assessment, in which the cardiovascular, respiratory and neurological systems are initially evaluated works well, followed by a secondary screen for any abnormalities elsewhere in the body. Alternatively, the use of a triage scoring system may be useful to identify patients needing immediate medical or surgical intervention. Patient-side ultrasonography is indicated in all trauma patients to detect internal injury early. If spinal injury is a possibility based on initial assessment, the patient must be immobilized to prevent any deterioration in their neurological condition until further evaluation occurs. Decreased mentation should raise concern for possible traumatic brain injury. Supplemental oxygen and minimal stress are indicated for any patient with respiratory abnormalities in the first instance. Once the patient has been stabilized, a more thorough evaluation of the patient should be performed for all other injuries.

After triage assessment, peripheral intravenous access should be obtained. If this is not possible, a surgical cut-down or intraosseous catheter should be considered. Emergency blood work consisting of a packed cell volume, total solids, blood glucose, lactate and venous blood gas can be taken at the time of catheterization to help guide patient management. Jugular venepuncture or catheterization should be avoided, where possible, in cases of suspected head trauma, to prevent increases in intracranial pressure. Open wounds should be covered in the first instance to reduce the risk of contamination prior to further treatment once the patient is stable. Early opioid analgesia is also paramount for patient welfare and to eliminate any contribution of pain to the cardiovascular assessment. Non-steroidal anti-inflammatories are contraindicated in trauma patients prior to further assessment. Steroid medications should also be avoided due to a lack of proven benefit in this patient population, and increased risk of adverse effects.

The most common cause of cardiovascular instability in the polytrauma patient is hypovolaemic shock secondary to haemorrhage. If hypovolaemia is present, fluid therapy should be started immediately, in the form of either a bolus of 10–20 ml/kg of a balanced isotonic crystalloid (Hartmann's) or 3–5 ml/kg of hypertonic

(7.2%) sodium chloride, given over 15–20 minutes in both cases. Ongoing shock despite aggressive fluid therapy should prompt concern for ongoing bleeding, cardiac arrhythmias, hypoxaemia or organ displacement (herniation). Common sites of internal bleeding include fracture sites and peritoneal, retroperitoneal, pericardial and pleural spaces. In patients refractory to initial crystalloid therapy, it may be necessary to consider an alternative fluid plan, blood transfusion or other means of haemostasis. Frequent patient monitoring is essential owing to the dynamic nature of the trauma patient.

KEY LEARNING OBJECTIVES

- Be able rapidly to identify life-threatening problems commonly seen in polytrauma
- Know how to provide rapid stabilization and appropriate analgesia to the trauma patient
- Be aware of common traumatic injuries in the polytrauma patient and have a strategy for their diagnosis and management

MULTIPLE CHOICE QUESTIONS

1. Which one of the following abnormalities could be consistent with peritoneal bleeding in the trauma patient?
(A) Cullen sign
(B) Normal packed cell volume and a total solids <60 g/l
(C) An increasing volume of peritoneal effusion on serial AFAST (abdominal and focused assessment with sonography for trauma) assessment
(D) Positive glide sign
2. Which one of the following drugs is not an appropriate choice for initial analgesia in a painful trauma patient?
(A) Dexmedetomidine
(B) Methadone
(C) Carprofen
(D) Ketamine
3. Which of the following is the most appropriate fluid resuscitation plan for a dog with moderate hypovolaemic shock and a concurrent traumatic brain injury?
(A) 5 ml/kg hypertonic saline
(B) 1 g/kg mannitol
(C) 20 ml/kg Hartmann's
(D) 15 ml/kg 0.9% sodium chloride

Head trauma

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Head trauma in veterinary patients can have many aetiologies. Although ocular, soft tissue and ortho-

paedic injury may occur, TBI may be a significant cause of morbidity and mortality. TBI may be suspected based on neurological findings during initial patient triage, including abnormal mentation, pupil size and reactivity or the presence of other head injury without immediately apparent neurological abnormalities. The Modified Glasgow Coma Score is a useful assessment tool in patients with TBI that are fluid