TRIAGE AND INITIAL ASSESSMENT

Elisa A. Rogers CVT, VTS(ECC)
MJR Veterinary Hospital
University of Pennsylvania
Philadelphia Pa

Triage and Initial Assessment

An emergency can be described as any situation that arises suddenly and unexpectedly resulting in a sudden need for action. Triage is the initial assessment of the emergency patient. It is performed immediately on presentation and should take less than five minutes. Triage is the evaluation of the four major organ systems (cardiovascular, respiratory, neurological and renal systems) while simultaneously obtaining a capsule history. Acquiring the history can be the most difficult step. Conversation should be limited to salient points only, avoiding irrelevant details. The history should include the primary complaint, duration of the problem, and any current drug therapy.

After triage the patient is categorized as stable or unstable, allowing appropriate prioritization of care. A stable patient is one that is not in a life-threatening condition. An unstable or emergent patient is one which is in a life-threatening circumstance and requires quick judgment and prompt action. The goal and purpose of triage is to first identify and then treat any immediate life-threatening conditions.
**Triage**

If any of the major body systems are grossly abnormal- the animal should immediately be brought to the main treatment room of the emergency room to be assessed by the veterinarian.

**RESPIRATORY SYSTEM**

I. Airway: determine patency of airway
   A. Normal- patent/ clear breath sounds
   B. Upper airway noise (stridor/stertor)
   C. Distress with inspiration associated with stridor

II. Breathing
   A. Assess respiratory rate
      1. Normal- 12-32 respirations per minute.
      2. Tachypnea: increased respiratory rate
      3. Apnea: no respirations
      4. Slow, prolonged breathing
   B. Assess respiratory effort
      1. Normal- there should not be any notable effort
      2. Labored inspiration
      3. Labored expiration
      4. Labored inspiration and expiration
      5. Paradoxical respiration: chest wall and abdominal wall do not move synchronously
   C. Postural adaptations of dyspnea
1. Normal - patient should not be posturing to breath

2. Orthopnea
   a. Stand rather than sit
   b. Abduct elbows

3. Abdominal movement

4. Extended neck, open mouth, head lifted

Cardiovascular System

I. Mucous membrane color
   A. Pink: normal
   B. Muddy or gray: poor perfusion
   C. Pale or white: anemia or poor perfusion
   D. Brick red (hyperemic): septic shock (not to be confused with severe gingivitis)
   E. Dark blue (cyanosis): hypoxia
   F. Yellow (jaundice): hepatic dysfunction, hemolysis or biliary obstruction
   G. Brown: methemoglobinemia (most commonly seen with acetaminophen toxicity)

II. Capillary refill time (CRT)
   A. Normal: 1 to 2 seconds
   B. Prolonged: greater than two seconds; indicates poor perfusion
   C. Rapid: less than one second; indicates hyperdynamic state or hemoconcentration

III. Normal pulse rate
   A. Canine: 70 to 140 beats per minute (bpm)
      1. < 70 bpm- bradycardia
      2. >140 bpm- tachycardia
B. Feline: 140 to 180 bpm
   1. < 140 bpm bradycardia
   2. > 180 bpm tachycardia

IV. Pulse quality
   A. Normal- Strong and synchronous with heart rate
   B. Weak: indicates poor perfusion
   C. Hyperdynamic: anemia or sepsis
      1. Snappy (tall and thin)
      2. Bounding (tall and wide)

Central Nervous System- The following should be assessed on triage. Their severity will determine the stability of the patient.

I. Gait
   A. Ataxia/weakness
   B. Loss of motor
      I. Muscular twitching
         A. hypocalcemia (ie. Eclampsia)
         B. pyrethrin toxicity

III. Head trauma

IV. Nystagmus: rapid eye movement

V. Head tilt

VI. Level of Consciousness
   A. Alert- normal
   B. Depressed- Quiet, unwilling to perform normally. Responds to environmental stimuli
C. Obtunded- Minimally responsive to auditory or tactile stimuli
D. Stuperous- Unresponsive to environmental stimuli. Responds to painful stimuli.
E. Comatose- No response to environmental and painful stimuli.

Renal System

On triage, the renal system is assessed with abdominal palpation when urinary blockage is suspected. Other emergencies affecting the renal system are identified while assessing the patient’s cardiovascular status.

I. Acute renal failure
II. Chronic end stage renal failure
III. Disruption of the urinary tract
   A. Ruptured ureter
   B. Ruptured bladder
   C. Ruptured urethra
IV. Urinary obstruction

Life-threatening Wounds

I. Open or penetrating chest wounds
II. Wounds to upper airway
III. Open or penetrating abdominal wounds
IV. Wounds affecting major blood vessels

Vascular Access and the Emergency Database
Intravenous access should be obtained in any critically ill patient for administration of fluids, drugs, and intravenous fluids. The most common vessels utilized for intravenous catheterization are the cephalic or lateral saphenous veins. Central venous access such as the medial femoral or jugular vein allows for a larger diameter catheter to be placed which is ideal for allowing achievement of higher drug concentrations in the coronary vessels as well as rapid fluid administration. These vessels are not as accessible as the peripheral vessels. In neonates, the easiest and most expeditious way to obtain vascular access is via the intravenous catheter placement.

An emergency blood database should be performed on all emergency patients. This includes a packed cell volume (PCV), total solids (TS), glucose, BUN, and a blood smear. There are various blood gas electrolyte analyzers that have become available for veterinary medicine over the years. They are fabulous tools to evaluate the above mentioned values as well as many more pertinent values.

PCV and TS should be interpreted in conjunction with each other. The changes in the two parameters often parallel each other with free water loss or hemorrhage. Decrease in both PCV and TS suggest hemorrhage. Acute blood loss will not immediately affect PCV and TS. It will take time for interstitial fluid to move into the vascular space and dilute out the remaining red blood cells and proteins. In canines, splenic contractions secondary to catecholamine release may actually cause an increase in PCV in the face of hemorrhage. The changes in packed cell volume will become immediately apparent with intravenous fluid replacement. We feel that TS is a more sensitive indicator of blood loss compared to PCV. A decreased PCV with normal TS indicates red blood cell destruction or decreased red blood
cell production. Anemia of chronic disease is characterized by a decreased PCV with normal TS. The foremost clinical significance to a decreased PCV is decreases oxygen carrying capacity of the blood. Hemoglobin is the chief carrier of oxygen within the blood. Decreased total solids may occur due to loss from hemorrhage, protein loss into third spaces or external loss through the intestines or kidneys. The major clinical importance to hypoproteinemia is decreased intravascular oncotic pressure. This may result in loss of fluid from the intravascular space and decreased ability to maintain vascular volume and blood pressure. Increased PCV is most likely due to dehydration- this is in conjunction with an increase of total solids.

Blood glucose readings are an essential portion of the emergency data base. Whether it be too high or too low (normal= 80-120 g/dl) can be life threatening to the patient. Low blood glucose readings are indicative of sepsis, liver dysfunction, neonatal hypoglycemia, insulin or insulin-like factor secreting tumors, to name a few. Hyperglycemia is most often due to diabetes mellitus. We may see transiently high blood glucose readings in overly stressed patients.

We include BUN in our data base to give an estimate of azotemia in our emergent patients. Low BUN concentration may be the result of fluid diuresis. Other causes can be due to a result of polydipsia/polyuria or decrease production of BUN due to liver disease or a portal-caval vascular shunt. Pre-renal, renal or post-renal causes can increase BUN. All should be investigated when an increase in BUN is detected.

The amount of information obtained from the emergency database in regard to the patient’s status should not be underestimated. This information combined with a solid history and thorough physical exam can often provide a diagnosis.
The Emergency Plan

The emergency plan will vary from patient to patient based on the presenting problem and patient’s status. A medical problem list should be generated in the order of most to least life threatening. Each problem should then be addressed in that order. Categories that should be covered include fluid therapy, medications, diagnostics, and treatment orders.

Summary

There are a variety of reasons that animals may present to an emergency service. In many circumstances, we do not have a solid history of why the animal is presenting. Having a systematic approach to these patients is paramount. The four major organ systems should always be the main focus. A compromise in one of these systems can be the most life threatening hence why stabilization of these systems allows the medical team to keep the patient alive while the underlying problem is diagnoses and treated.