Chapter 3 - Lesson 4

Pain Recognition

Introduction

What is pain? Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage. All potential and actual tissue damage in animals should be considered to cause pain. Pain commonly arises from activation of a physiological process which involves receptors and neural pathways that carry a noxious stimulus. Pain can be experienced with or without accompanying signs of stress (e.g., rapid heart rate or high blood pressure). The first step in treating pain is to recognize the clinical symptoms.

Classifications of Pain

Physiologically, pain is divided into two classifications: nociceptive or neuropathic. Nociceptive pain is the perception of painful sensation. Neuropathic pain is either central or peripheral (outer surface), depending on the origin of the stimulus (e.g., direct damage to peripheral nerves or the spinal cord).

Nociceptive pain is further divided into two categories: somatic and visceral. Somatic body pain, which in humans has been described as localized, sharp, aching, or throbbing pain, and originates from skin, connective tissue, muscle, joint, and bone. Visceral (organ) pain is described as dull or hard to localize, and originates from receptors in the heart, lungs, kidneys, liver, gastrointestinal tract, uterus, or bladder. If pain is left untreated or under treated, animals can become depressed, lethargic, withdrawn, and eventually immobile. Early recognition and aggressive treatment is necessary to prevent these experiences. Patients being treated for pain during the preoperative period return to normal function sooner than those individuals who are left untreated.
While general anesthesia prevents the conscious perception of pain, it does not stop the nociception of pain during surgery. Pre-emptive analgesia reduces the input from the peripheral nerves during anesthesia and may reduce the amount of drug required to provide patient comfort in the post-operative area. Additionally, pre-emptive analgesics have been shown to be advantageous in being able to decrease the amount of inhalant anesthetic necessary to achieve surgical anesthesia.

Nociceptors respond to noxious stimuli. The impulse is altered from physical energy to chemical (transduction), and is transmitted along peripheral neurons (transmission) to the dorsal horn of the spinal cord. Here the neurons synapse with neurons in the spinothalamic tract (modulation), which carry the impulse to the brain resulting in conscious recognition (perception) of pain.

**Behavioral and Physiological Responses**

Recognition of pain in animal patients is dependent on behavioral and physiologic responses. Physiological responses to and consequences of pain are identical to those attributed to shock, which result in consequences such as collapsed lung, dropped blood oxygen levels, decreased gut motility, increased metabolic rate, and decreased urine output. Associated with these consequences are behavioral changes such as reduced socialization and increased anxiety.

Behavioral signs of pain can vary widely among patients. Some individuals and certain breeds are known for their stoic behavior while other patients readily exhibit behavioral changes.

**Behavioral Signs that Indicate Pain**

Behavioral signs can include:
1. Vocalization
2. Silence
3. Guarding of the affected area or surgical site
4. Changes in facial expression
5. Self-mutilation
6. Muscle rigidity or weakness
7. Restlessness
8. Reluctance to move
9. Personality changes
10. Dullness (slow to respond to handling)
11. Loss or decrease in food and/or water intake
12. Failure to groom

**Physiological Responses to Pain**

Physiological responses may include:
1. Cardiopulmonary changes:
   a. Increased heart rate
   b. Increased blood pressure
   c. Irregular heart beat
   d. Increased respiratory rate
   e. Shallow breathing
   f. Pale mucous membranes
2. Dilated pupils
3. Increased salivation fifteen
4. Elevated blood sugar

Patient is monitored after surgery.
Degrees of Pain

Mild pain usually presents as a nuisance type pain that is easily tolerated. Manipulation of the affected part appears to be an annoyance to the patient, but does not seem to be painful when not being stimulated. Moderate pain is thought to be present when a patient has a disease or has undergone a surgical procedure that is known to cause pain. Severe pain is such that a patient howls, cries, or screams unprovoked. Self-mutilation may be observed, as well as violent thrashing. It may not be possible to totally eliminate all pain but rather the goal should be to reduce the pathological pain. Nursing care can greatly improve the pain tolerance of most of animal patients.

Blood should be cleaned from the surgical area, and if warranted the urinary bladder of post-operative patients should be expressed. External heat sources should be provided to prevent low body temperature or to aid in active re-warming. This can be done by utilizing forced warm air blankets, circulating water pads, or in-line fluid warmers if the patient is to be on intravenous fluids. The use of warm, dry bedding to cushion and support the patient will bring some relief. If possible, during the immediate re-emergency phase of anesthesia, a quiet room with dimmed lighting can reduce anxiety. The human touch is greatly reassuring to the majority of animal patients.

References


Hansen, B. (2010). Recognition and alleviation of pain in laboratory animals. Lakewood, CO: ACVIM.

Questions

1. What are the two classifications of physiological pain?
2. Recognizing pain is dependent on observing signs of what two animal responses?
3. List four possible behavioral signs exhibited by a patient in pain.
4. List three possible cardiopulmonary changes exhibited by a patient in pain.
5. Briefly describe what might be seen in a patient with severe pain.
6. What non-chemical actions might be taken to assist a patient in possible pain?