Emergency & Critical Care: Fluid Therapy 1: Fluid Therapy

The Basics

Abstract

This lecture is the first in a series of Fluid Therapy lectures by Louise O Dwyer and examines the basics of fluid therapy. It discusses fluid requirements and fluid balance and then goes on to discuss dehydration, hypovolaemia and shock.

Learning Outcomes

- An understanding of the theoretical basics of fluid therapy.
- An understanding of the basics of fluid therapy in practice.

Course Notes:

Water: 60% of bodyweight. Value changes based on: Age, Lean body mass, Degree of obesity, Gender and Adipose tissue contains more water than muscle.

Dehydration vs Hypovolemia:

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<th>Dry oral mucous membranes</th>
<th>Increased skin tenting</th>
<th>Tachycardia</th>
<th>Decreased Pulse pressure</th>
<th>Sunken eyes/dry corneas</th>
<th>Alteration of consciousness</th>
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To get a rough estimate of an animal’s degree of dehydration, you can use subjective guidelines of skin tenting and mucous membrane dryness. For example, historical vomiting or diarrhea without a measurable increase in skin tenting or mucous membrane dryness can be categorized as less than 5% dehydration. As the volume of fluid loss increases, external evidence of dehydration becomes more readily apparent and become more progressive and severe. At 7% dehydration, mild tachycardia could also be present. At 10%, the patient might also have a decreased pulse pressure. Then at 12% dehydration and higher you might see sunken eyes and dry corneas and, in severe cases, alterations of consciousness. Evaluating these physical parameters and determining the percent of dehydration is a component of calculating the replacement fluid volume needed for your patient.

Hypovolemia

Hypovolemia refers to inadequate circulating intravascular volume. Hypovolemia can result in hypovolemic shock from excessive hemorrhage, such as that observed with a bleeding abdominal mass, vitamin K antagonist rodenticide intoxication, or an arterial laceration.
Fluid Therapy Types:

**Crystalloids**
- Composed of smaller molecules
- Rapidly leave intravascular space

**Colloids**
- Composed of larger molecules
- Stays in intravascular space longer

Stages of Shock:

**Early compensatory shock**
- Hyperaemic mucous membranes
- Tachycardia
- Rapid capillary refill time
- Normal to increased blood pressure

**Late decompensatory shock**
- Bradycardia, poor pulse quality
- Prolonged capillary refill time
- Hypotension
- Pale to grey mucous membranes
- Hypothermia
- Decreased central venous pressure
- Decreased urine output