Navigating Fluid Therapy in Dogs and Cats: A Step-by-Step Approach from the AAHA Fluid Therapy Guidelines

**ALGORITHM 1: ASSESSMENT**
Assess volume status considering clinical findings, blood work abnormalities, evaluation of ongoing losses and trends

- Is patient hypovolemic? (Systolic BP <100 mm Hg, tachycardia, prolonged CRT, cold extremities, tachypnea, dull mentation, ultrasound findings consistent with hypovolemia)
  - yes
  - no

**ALGORITHM 2: FLUID RESUSCITATION**
Initiate treatment
- Deliver IV fluid bolus over 15-30 min.
- Dogs: 15-20 mL/kg, Cats: 5-10 mL/kg
- Select a fluid with similar sodium content as the patient

- Reassess the patient
  - Does the patient have signs of shock, requiring additional fluid resuscitation?
    - yes
    - no

- Repeat IV fluid bolus
- If hypovolemia has resolved, continue Algorithm 3: Rehydration

- If a large volume of fluids has been delivered with minimal or no improvement, consider:
  - Vasopressors
  - Positive inotropes
  - Critical care consult or transfer

**ALGORITHM 3: REHYDRATION**
Calculate volume deficit
- Fluid deficit (mL) = body weight (kg) x % dehydration (as a decimal)

Calculate fluid rate
- Deliver fluid deficit over 12-24 hours

Select fluid type
- Consider patient’s current sodium, albumin levels, and comorbidities

Reassess rehydration
- Does the patient have signs of dehydration, requiring recalculation of fluid deficit?
  - no
  - yes

- Assess for ongoing losses
  - Vomiting
  - Diarrhea, melena
  - Drain production
  - Excessive panting
  - Fever
  - Polyuria
  - Third spacing
  - Nasogastric tube gastric residuals

- If dehydration has resolved: continue Algorithm 4: Maintenance

**ALGORITHM 4: MAINTENANCE**
Can the patient meet their fluid and electrolyte requirements enterally?
- no
- yes

Calculate maintenance fluid rate:
- Dog: 60 mL/kg/day, Cat: 40 mL/kg/day; or
- Dog: 132 x body weight (kg)^0.75, Cat: 80 x body weight (kg)^0.75
- Pediatric: 3 x daily rate

- Remember daily electrolyte requirements:
  - Potassium, sodium, chloride

Deliver fluid requirements enterally:
- If patient is voluntarily eating and drinking, ensure nutrition and fluid ingestion are met
- Place feeding tube (nasogastric vs esophagostomy), calculate oral water and liquid diet per day

Re-calculate fluid deficit and deliver over another 12-24 hours
- Consider measuring Ins/Outs
- Consider frequent weighing

BP, blood pressure; CRT, capillary refill time

The 2024 Fluid Therapy Guidelines for Dogs and Cats are available at aaha.org/fluid-therapy.

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