Emergency Approach to Vomiting and Diarrhea

Hemorrhagic Gastroenteritis (HGE)

- Sick or healthy dog with bloody diarrhea
- Canine parvovirus
- Salmonellosis
- Addison's disease
- Dietary indiscretion
- Pancreatitis

Acute Hemorrhagic Diarrhea Syndrome (AHDS)

- Acutely ill dogs with bloody diarrhea
- Often present in shock with normal to mild dehydration
- Elevation PCV with normal to low TP
    - Rule of 10: The PCV is 10x the TP

Signalment

- Younger to middle age
- No sex predilection
- Small breeds
    - Mini schnauzer
    - Dachshund
    - Toy poodle
    - Cavalier
    - Min Pin
    - Pekingese
    - Maltese
    - Large dogs in CA (labs etc.)

Presenting History

- Most commonly starts with vomiting
- Progresses to hemorrhagic diarrhea in hours to days
- Otherwise unremarkable history
- Trend for more common in winter

Physical Examination

- Vasoconstrictive shock from hypovolemia
- Poor perfusion parameters

    - Obtundation
    - Taychcardia
    - Poor pulse quality
    - Pale mucous membranes
    - Prolonged CRT
    - Cool extremities
- Dehydration *DON'T ALWAYS SEE THIS
    - Prolonged skin tent
    - Dry mucous membranes
    - Poor tear film

Pathogenesis *opposite of most diarrhea situations

- Idiopathic condition
- Clostridium spp. Producing Net E and F toxin
- Disruption of intestinal permeability due to the acute inflammation within the small intestine
- Acute translocation of plasma like fluid
    - Protein rich fluid with minimal red blood cells
    - Later loss of ECF (salt and water)
- Leads to hypovolemia +/- dehydration

Treatment

- Resolve shock
    - Often 1.5-3x blood volume in isotonic crystalloids
    - Need large volumes of fluid given more liberally
    - May need to give more than a shock dose of fluids (190ml/kg is ok)
    - Severe dehydration
    - 3rd space loss into gut
- IVF 12-24 hours until drinking on own
    - Consider synthetic colloids
- Antibiotics
    - If patients have clinical signs of sepsis
        - Persistent fever, tachycardia, tachypnea post fluid administration
        - Concurrent neutropenia <2,000 with a fever or <1,000 without fever
        - Known immunosuppressive conditions
            - Chemotherapy, Cushing's disease etc.
    - Don't typically go home on antibiotics
- GI protectants and/or antiemetics
    - Typically for the first day or two
        - Ondansetron

        - Maropitant
- Antacids
    - Likely not indicated given stomach is not affected in this disease
    - Use of PPI in humans increase the likelihood of pneumonia development

Parvovirus

- Most common viral infectious disease of the ER
- Two major forms
    - Parvovirus myocarditis
        - Pups are infected in utero or very young
    - Parvovirus enteritis
        - More common
- IDC concerns
- Exists as CPV-1, 2a, 2b, 2c
    - Regionality determines which variant predominates
- CPV-1 causes mild diarrhea in young puppies
    - May be fatal from neurologic or respiratory disease
- ELISA test equal ability to diagnose any CPV-2 form

Breed predilection

- Rottweiler
- Doberman Pinscher
- Labrador Retriever
- German Shepherd Dog
- American Staffordshire Terrier

Clinical signs

- Vomiting with or without diarrhea

Diagnosis

- ELISA SNAP test
    - Moderate sensitivity and high specificity
    - Used as our screening test
    - Vaccination may induce a weak positive
        - Typically within 5 days post vaccine and is a faint positive
- PCR may be more sensitive than ELISA

    - 62% positive in feces after first vaccine
    - Reach for this if the dog is ELISA negative but there is still a strong suspicion

Therapy

- Large amounts of IV fluids
    - Isotonic crystalloids
    - Consider colloids if albumin is <1.5g/dL
    - Supplemental K^+ and Dextrose as needed
- Offer food daily
    - Prolonged illness (NG tube)
- Pain control
    - Usually buprenorphine
- High level of success with appropriate fluid therapy
    - Likely 95% in a teaching hospital without financial constraints
- Antimicrobials
    - Parvovirus directly affects bone marrow
    - Indicated if evidence of sepsis, or leukopenia
    - Broad spectrum for enterics and anaerobes
        - Often amoxicillin/sulbactam is sufficient
        - Epstein gives aminoglycosides to cover the enterics
        - Short course only until bone marrow regenerates
            - Stop once there is a normal neutrophil count!
            - ~9/10 dogs need antibiotics
- Anti-nausea/emetic
    - Ondansetron
        - 5HT-3 antagonist
    - Maropitant
        - NK-1 inhibitor

Outpatient Treatment

- Give estimated deficit SQ
- Daily calculated maintenance SQ TID
    - Decrease to BID when not fully absorbed
- Antimicrobial (Cefovicin) SQ
- Antinausea/antiemetic

*Monoclonal antibody study was a licensing study, not a clinical study. It may play a role in out-patient situations

Immunity after infection

- Pups should be immune for at least 20 months
- Likely for life
- Subset of dogs never obtain immunity due to a genetic defect

Environment

- Parvovirus survival
    - Indoors: 5 years
    - Outdoors: 1 year

Enteritis

Diagnostics

- Goal is to rule out a surgical disease
    - Radiographs
    - Ultrasound
- Depending on level of illness
    - CBC/Chem to rule out metabolic disease
- May not need any
    - Goal is to not overdo the diagnostics on every patient
    - Waste of the owner's money

Non-Specific Vomiting Treatment

- Hospitalize vs at home care
    - Geographics play a role, how close are they to vet care
- NPO
- Fluids
    - Usually SQ fluids
- Anti-emetics
    - Avoid maropitant if an obstruction is not ruled out
    - Ondansetron helps with nausea but they can still vomit if there is a severe enough problem
- Gastroprotectants
    - Not recommended in this disease

Non-Specific Vomiting Treatment

- Dietary management alone is superior to metronidazole/diet
- Addition of psyllium resolved diarrhea faster than just diet when compared to metronidazole