Management of the Patient with Digestive Disorders

Upper & Lower Gastro-Intestinal Problems

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Conditions of the Upper GI Tract
GastroEsophageal Reflux Disease (G.E.R.D.)
Gastritis
Peptic Ulcer Disease (PUD)
Gastric CA

CM’s & causes
Pain or Tenderness
Anorexia or fullness
Nausea
Vomiting
Chemical irritation of nerve endings
Slow emptying (Gastric stasis)
Tension on walls
Medulla stimulation
Nerve impulses: (CTZ, GI, inner ear)
CM's & causes

- **Bleeding**
  - Local trauma or irritations to mucosa

- **Diarrhea**
  - Peristalsis dit
  - Gastrocolic reflex
  - Effort to rid toxin

- **Belching & flatulence**
  - Swallowed air
  - Incomplete digestion

- **Indigestion**
  - GI disease, gas forming foods,
  - poor manners, food allergy

**Gastroesophageal Reflux Disease (GERD): Pathophysiology**

- Length & frequency of esophageal acid exposure
  - To HCl, Pepsin, bile acids & pancreatic enzymes
  - pH < 2.0

  - Diffusion potential @ surface epithelial cells
  - Cellular permeability
  - H+ penetrate intracellular space
  - H+ reach deeper sensory nerve endings

  "Heartburn"

**Sites of GI Pathology**

- Esophageal cancer
- Esophageal Varices
- Gastritis
- Gastric Ulcer
- Gastric Cancer
- Duodenal Ulcer
ACUTE Gastritis

- Transient inflammation of **gastric mucosa**
- **Common causes**
  - Bacterial endotoxin (H.pylori, Staph)
  - Caffeine, Alcohol, Smoking
  - Steroids, Aspirin & NSAIDS
  - Bile Reflux
  - Burns, Shock, Sepsis
- **Severity**
  - Moderate edema
  - Hemorrhagic erosion

Acute Gastritis

**Pathophysiology**

- Break in mucosal Barrier
- Vessel Erosion ➔ Diffusion: HCl & Pepsinogen into mucosa
- Loss of plasma proteins into gastric lumen
- Tissue Edema (increased capillary permeability & vasodilation)
- Disruption of Mucosa & Capillary walls
- Histamine ➔ Prostaglandins

CM's r/t cause

- **Aspirin**
- Unaware
- Heartburn
- Sour stomach
- **Staphylococcus**
  - Abrupt & violent onset
  - 5 hours after ingestion of contaminated food
- **Alcohol**
  - Transient vomiting
  - GI bleeding
- **Caffeine**
- Tea
- Pepper
- **Radiation**
- Chemo
- **Complete regeneration of mucosa within several days**
Gastritis - Nursing Diagnosis

Gastric Tissue Perfusion altered r/t
- blood loss
- nutritional 2nd loss of acid-secreting cells

Ineffective Breathing Pattern r/t
\text{↑} pressure against diaphragm 2nd
- GERD
- Abdominal distention & pain

Chronic Gastritis - Causes

Type A - fundal
- Autoimmune
- Circulating antibodies to
  - Parietal cells
  - Intrinsic factor
- Associated with
  - Pernicious Anemia
  - Addison's Disease
  - Hashimoto's Thyroiditis
- Multiple bouts

Type B - antral
- H. pylori
- Atrophy of gastric mucosa

Pathophysiology - H. pylori & chronic gastritis/PUD

\frac{1}{2} World Population colonized/infected-but many do not develop disease.
H. Pylori bacteria:
\text{↓} duodenal bicarbonate secretion
contains proteases that degrade mucosa & develops Peptic Ulcer disease; or,
metaplastic \text{Δ}s \rightarrow produces chronic gastritis \rightarrow \text{↑} gastric CA
First stage

- H. Pylori penetrates mucosal layer & forms clusters near membranes of surface epithelial cells

Second stage

- Some H. pylori attach to cell membrane
- Some lodge between epithelial cells

Diagnostic Studies for H. pylori

- Noninvasive:
  - Stool or Breath Testing
- Invasive:
  - Biopsy of antral mucosa with rapid urease testing
**H. Pylori – Medical Management**

- Combination therapy can eradicate H. pylori in up to 85% of cases
  - Antibiotics
    - Amoxicillin
    - Clarithromycin
    - Metronidazole
  - Antisecretory
    - Proton Pump Inhibitors
    - Cytotec
    - Carafate
    - Pepto-Bismol

**Stress/Drug Related Mucosal Disease (SRMD)**

- Aka Peptic Ulcer Disease (PUD) Types/Cause:
  - **Duodenal Ulcers**
    - ↑ acid secretion
    - Rapid gastric emptying
    - ↓ buffering effect of
      - ↑ acid load in duodenum
      - Penetrating lesion 1–2 cm
  - **Gastric Ulcers**
    - Gastric erosion
    - Break in mucosal barrier due to incompetent Pylorus
    - Superficial lesion Antrum

**SRMD**

- Severe trauma
- Burns – Curling’s Ulcer
- Head Injuries – Cushing’s Ulcer
- NSAID’s, aspirin, steroids, ETOH
- Shock/Sepsis
Complications of Gastritis: Upper GI Bleed

Hemorrhage Prevalence
25% of clients have massive bleed - 2500 ml

Onset
- Sudden
- Insidious

Severity
- Arterial
- Venous
- Capillary

Significance of VS

BP - ↓ 10 mmHg
HR - ↑ 20 bpm

reflects a blood loss of at least 1000cc
= > 20% of total blood volume
Physiology Review

Endocrine System

Decreased Cardiac Output and Hypotension

Stressor

Renin
Angiotensin I
Angiotensin II

Adrenal Cortex
Mineralcorticoids
Aldosterone

Increased Na+ absorption

Posterior Pituitary
Antidiuretic Hormone (ADH)

Increased H2O absorption

Increased Blood Volume/Pressure
Increased Venous Return
= Increased Cardiac Output

1st Level Assessment (CM’s)

Stage 2-Compensatory

O2

+ TIR Test

P

% 20 bpm > baseline, bounding

BP

normal or ↓ systolic; ↑ diastolic

RR

↑ rate & depth → resp. alkalosis

Skin

pale, cool, delayed CR

Neuro

restless, irritable, apprehensive
oriented X3, Pupils-dilated & reactive

F/E

slight ↓ in urine output, thirsty

Sites of UGI Bleeds

Esophageal Varices

Esophageal cancer

Mallory-Weiss Syndrome

Gastritis

Duodenal Ulcer

Gastric Ulcer

Gastric Cancer
UGI Bleeds: Etiology

Mallory-Weiss
- Non-perforating tear of the gastric mucosa
- Exacerbated during vomiting
- Associated with:
  - alcohol use
  - hiatal hernias
  - gastritis
  - esophagitis

Esophageal and Gastric Varices
- d/t chronic liver disease
  (portal hypertension, causing ↑ pressure & dilation in esophageal veins)

Assessment - UGI Bleed

History (Hx): Chief Complaint (CC) & History of Present Illness (HPI)
- precipitating or alleviating factors
- substance use or abuse
- vomiting
- stools
- diet history
- stress
Clinical Manifestations

UGI Bleed

- Pain
  - burning or cramping in mid-epigastric area
  - Nausea & possibly vomiting
- Normal or ↑ bowel sounds
- Hemorrhage or perforation may be first symptom

Hemorrhage

- More common in duodenal vs. gastric
- Common with varicies
- Clinical manifestations
  - hematemesis
    - bright red or
    - "coffee ground"
  - stools: melena, maroon or burgundy
  - fluid volume deficit
  - ↑ H&H, ↑ BUN initially because of FV ↓, but once volume status is corrected, both will go down.

Hemorrhage

Nursing Dx

- Fluid volume deficit
- Altered tissue perfusion

The percent of blood loss correlates with CM’s:
- LOC
- skin signs & capillary refill
- BP, HR
- UOP
Collaborative Management
Hemorrhage
- Establish IV route
  - replace with crystalloids or colloids
  - replace clotting factors
- Monitor vital signs frequently
- Gastric lavage
  - large bore NG tube
  - room temperature saline
- Anticipate transfer to critical care
  - Hemodynamic monitoring
  - Diagnostic Endoscopy

Collaborative Management - cont'd
Ulcers
- Therapeutic endoscopy using contact probes - heater, laser, or electro or argon plasma coagulation to coagulate bleeder

Varices
- sclerotherapy injection - agent injected into bleeder to sclerose vessel
- variceal band ligation - causes thrombosis and fibrosis of bleeder
- vasopressin +/- IV nitroglycerin
- Balloon tamponade

Esophagastroduodenoscopy (EGD)
Nursing Care
- Pre-procedure
  - NPO
  - S.O. to Drive Pt. Home
  - Remove dentures/bridges
- During Procedure
  - Monitor VS for BZD OD
  - Mazon on hand
- Post-procedure
  - Sims position
  - Gag reflex
  - Monitor for vagal response
  - Monitor for perforation

Procedure
- Conscious Sedation
- Anticholinergics
- Anesthetic Spray to back of throat
- Left lateral position
- Pictures
- Biopsy
PUD – complications & Indications for Surgery

Gastric Outlet Syndrome

Massive hemorrhage unresponsive to fluid replacement and EGD procedures

Gastric Outlet Obstruction

- Hypertrophy
- Swelling, scarring, spasm
- Most common in pyloric area
- Atony & dilation
- Projectile vomiting

Potential Complication of PUD: Perforation

Clinical manifestations
- Sudden onset of severe upper abdominal pain
- May have N&V
- Rigid, board-like abdomen
- Absent bowel sounds
- Shallow, rapid respirations
- Free air on abdominal x-ray
Surgical Interventions
- Gastric closure - closes perforation
- Vagotomy - ↓ acid secretion in stomach
- Billroth I&II - vagotomy & antrectomy with anastamoses
- Total gastrectomy - removes source of acid

Post-op Care
- NG tube management
  - patency, position (CO2, pH paper) & stability observe, record and report output
- Fluid replacement
  - IV fluids
  - blood products
- Pain management
  - Cough, Deep Breathe, Ambulate

Post-op Care
- Post-op concerns:
  - Dumping syndrome
  - Post Prandial hypoglycemia
  - bile reflux gastritis
Dumping Syndrome - CM’s

Food “dumps” into intestine

Hyperosmolar bolus

Rapidly pulls extracellular fluid into bowel

Activates Sympathetic NS

• ↑ HR
• Palpitations
• Syncope
• Skin signs
• GI symptoms

Distributive shock

Fluid shift ↓ circulating blood volume

Distended bowel lumen

Activates Parasympathetic NS

• Distention
• Cramping
• Borborygmi
• Tenesmus

Management of Dumping Syndrome

5-6 small meals

↑ fat, ↑ PRO, ↓ CHO

↓ roughage

Liquids between meals only

Develop a diet plan for the patient to prevent “dumping syndrome” based on the RX on the left side
Pt. - Family Education
- risk factors
- medication regime: sedatives & anticholinergics/antispasmsotics to slow transit time
- stools for occult blood
- when to notify healthcare provider

Conditions of the Lower GI (intestinal) tract
- Peritonitis
  - Inflammatory Bowel Disease (IBD)
    - Crohn’s Disease
    - Ulcerative Colitis
  - CA colon

Peritonitis
Inflammation of the large semi-permeable peritoneal double-layered membrane that covers the viscera and lines the walls of the abdominal and pelvic cavities
Peritonitis

Positive characteristics
- Exudes a thick, fibrinous substance in response to inflammation
- Adheres to other structures (mesentery & omentum) to “wall off” infection.
- Sympathetic stimulation ↓ gastric motility which inhibits spread of contaminants

Negative characteristics
- Large unbroken space:
  - Favors transmission of contaminants
- Large surface area:
  - Permits rapid absorption of bacterial contaminants into the blood

Peritonitis - Types/Causes

Chemical
- Gastric ulcer
- Rupture ectopic
- Bacterial

Bacterial
- Trauma
- Ruptured appendix
- Pancreatitis
- Peritoneal dialysis

Beware: risk for peritonitis w/ruptured appendix
Pathophysiology

Peritonitis

- Inflammation
- Shifts fluid volume from IVC to peritoneal space
- Peristalsis ↓↓↓ Free Air ↑↑ pressure
- ↑ O² requirements
  d/t ↑ pressure on diaphragm
- ↑↑ fluid accumulation
- ↓↓ circulating volume
- ↑↑ pressure

Clinical Manifestations

Peritonitis

- Pain
  - Well localized
  - Rigid abdominal muscles
  - ↑ with movement or pressure
    Guarding behavior
- N & V F&E Imbalances
- BS: Ø
- Resp: shallow
- WBC ↑↑ >20K
  CBC: ↑ Hb
- ↓ grade fever <100-101°F

Collaborative Management

- Replace Fluids & Electrolytes
  - Replace lost Proteins- albumin
- NG or long intestinal tube to decompress stomach & prevent aspiration
- Incision & Drainage
  - Wound Care w/ irrigations
  - C & S – wound drainage
  - Antibiotic Therapy
Nursing Priorities
- Assessment
  - Pain (P, Q, R, S, T)
  - Bowel sounds
  - Wound Care
- Post-op
  - ARDS
  - Sepsis → Septic Shock
  - IV fluids & antibiotic therapy
  - Teaching - Wound Care

Lower GI Pathology: Inflammatory Bowel Disease
Incidence:
- 2 peaks
  - 15-25 years
  - 55-65 years
- Male = female
- White, urban, ↑ Jewish
- Upper middle class
- Familial (10 x)
- ? Autoimmune

Impact
- 2 million Americans
- $1.8 - 2.6 billion
  - Lost wages
  - Disability payments
  - Insurance payments

IBS Etiology: Not Clear
- Current Research: strong genetic component; also autoimmune response
  - Caused by an inappropriate immune response to an environmental trigger
  - Both intestinal and extra-intestinal CM's
- Other causes
  - Bacterial trigger
  - Allergic response
  - ↑ destructive enzymes
  - ↓ protective substances
### Comparison: IBD

<table>
<thead>
<tr>
<th>Comparison: IBD</th>
<th>Crohn's Disease (Sm &amp;/or Lrg Bowel)</th>
<th>Ulcerative Colitis (Colon Only)</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>Cobblestone pattern</td>
<td>Erythema</td>
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<td>Peyer's Patches: Fissured ulcers, granulomas</td>
<td>Ulcerations</td>
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<td>Edematous mucosa/enlarged lymph nodes</td>
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### Appearance

- **Crohn's Disease (Sm &/or Lrg Bowel)**
  - Cobblestone pattern
  - Peyer’s Patches: Fissured ulcers, granulomas
  - Edematous mucosa/enlarged lymph nodes
  - Discontinuous pattern, thickened, narrowed lumen

- **Ulcerative Colitis (Colon Only)**
  - Erythema
  - Ulcerations
  - Continuous Pattern

### Distribution

- **Crohn’s**: Anywhere - common at terminal ileum
- **Ulcerative Colitis**: Rectum & Distal colon

### Inflammation

- **Discontinuous, Transmural**
- **Continuous, Mucosa & sub-mucosa**

### Common CM’s

- **Abdominal Cramping Pain & Diarrhea**
  - Weight loss, esp. if terminal ileum is involved
- **Diarrhea**
  - Rectal Bleeding
  - Cramps & Pain

### Blood in stool

- **Visible w/colon involved**
- **Usually visible**

### Carcinogenesis

- **Mild ↑ Risk**
- **↑ Risk after 10 years**

### Surgery

- **Possible, but not curative**
- **Yes, if medical mgt. fails**
Diagnostic Tests

<table>
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<th>Lab Abnormalities</th>
<th>Causes</th>
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<tr>
<td>CBC -</td>
<td>Blood loss</td>
</tr>
<tr>
<td>↓ Fe</td>
<td>Toxic megacolon</td>
</tr>
<tr>
<td>↑ WBC</td>
<td>Perforation</td>
</tr>
<tr>
<td>Electrolyte Panel</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>↓ Na, K, Cl, HCO₃, Mg</td>
<td></td>
</tr>
<tr>
<td>Serum Protein</td>
<td>Severe disease</td>
</tr>
<tr>
<td>↓ albumin</td>
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Endoscopy – biopsy for definitive diagnosis (Dx)

Extra-intestinal CM’s

Musculo-Skeletal:
- Arthritis/Arthralgia (asymetrical)
- Occurs at same time as flare-ups
- Ankylosing spondylitis (↑ 30 x)
- Osteoporosis
- Liver: fibrosed hepatic and biliary ducts/stones
- Pulmonary
- Renal/Urinary Tract: fistula formation

More Extra-intestinal CM’s

- Skin/Oral: Erythema nodosum/ulcers
- Ocular manifestation: Conjunctivitis
- Hematologic: Anemia, Thrombocytosis & Embolism
- Amyloidosis: accumulation of insoluble protein
Collaborative Goals

- ↓ diarrhea
- ↑ nutritional status

Medical Management - ↓ diarrhea

- ↓ diarrhea
  - If severe, bowel rest (NPO) & TPN
  - Antidiarrheal
  - Aminosalicylates (anti-inflam. prostaglandin synthesis)
  - Corticosteroids
  - Immunosuppressives
    - Remicade - blocks action of TNF
  - Anticholinergics
  - Anti-infectives
    - Sulfonamides
    - Flagyl
    - Cipro

Medical Management - ↑ Nutrition

Nutrition < body requirements r/t insufficient intake (anorexia) 2°

- ↑ levels of Tissue Necrosis Factor, interleuken (cytokines)
- fear of post-prandial abdominal pain & diarrhea
- malabsorption - ↓ levels of Zinc, Ca, nickel → altered taste sensation
- Drug therapy – Flagyl causes metallic taste
Nutrition < body req. r/t malabsorption 2° ...

- corticosteroids
  - ↓ Ca absorption in intestines
  - ↑ Ca excretion by kidneys
  - Alter protein metabolism
- Sulfasalazine (Azulfidine) anti-inflammatory (adverse effects: n/v/d, pain, blood dyscrasia, skin rash/SJS, ↓ folate & iron absorption

Nutrition < body req. r/t malabsorption 2° ...

- Antibiotics -
  - affect gut flora
  - Affect Vit. K metabolism
  - Can cause diarrhea
- Malabsorption -
  - ↓ absorptive surface in small bowel
  - Exudative protein losses

Collaborative Management
Outcomes/Interventions

Acute Phase

- Hemodynamic stability
- Restore/maintain fluid & electrolyte balance
- Nutritional support
  - Parenteral Nutrition (PN) – bowel rest
  - Elemental or low residue diet
- Decrease immune response
  - Immuno-suppressants : Azathioprine (Imuran)
Collaborative treatment (con't.)

Relieve symptoms

- Inflammation, diarrhea, pain: Corticosteroids
- Treat infection: anti-microbial & anti-inflammatory
- Control diarrhea: maybe Lomotil, Imodium preferred
- Pain: Narcotics (will also slow motility)

- Bedrest
- Stress reduction
- Emotional support
- Surgery if necessary

Nursing Interventions

- Diarrhea
  - Bowel rest
  - Help patient determine causative foods (caffeine, spicy)

- Skin integrity
  - Encourage protein intake
  - Cleanse well, Sitz bath, moisturizer & barrier creams

- Acute Pain r/t inflamed bowel mucosa
  - Assess, alert to complications
  - Use narcotics as needed (PRN)

Nursing Interventions (con’t.)

- Teach cancer screening (ulcerative colitis)
- Ineffective coping
  - Identify ineffective coping behaviors
  - Include family, other staff in plan
  - Encourage expression of feelings
  - Stress reduction techniques
  - Referrals as necessary
    - Counseling, dietician
Surgical Management

Ulcerative Colitis
- 25-40% eventually will need surgery.
  - Permanent ileostomy
  - Continent ileostomy

Crohn’s Disease
- Surgery not usually indicated except for complications
  - Perforation
  - Hemorrhage
  - Obstruction

Continental Ileostomy
- Early complication - leakage
- Late complication - obstruction
- Stoma sutured flush with skin
- Pouch sutured to abdominal wall
- Edges joined to form pouch

Outcome Management: Ileostomy
- Nursing Management: Teaching
  - Ostomy Care & Stoma Assessment
  - Prevent Skin Irritation & Treat Problems
  - Discuss Medications & Reduce Odors
  - Discuss Diet, Foods, & Fluids
  - Maintain Ileal Drainage
  - Continent Ileostomy: Reservoir Cath
Colorectal Cancer

Risk factors

- Age (>40-50)
- High-fat, low fiber diet
- Family or personal history
  - Colon or rectal CA
  - Adenomatous polyps
- Personal hx of:
  - Ulcerative colitis
  - Breast, ovarian, uterine CA

Clinical Manifestations

- Location of Primary Lesion:
  - Ascending colon is larger and more vascular ... anemia with all of its cm's r/t slow capillary bleeding with positive FOB
  - Descending colon is more narrow ... obstruction d/t mass invading bowel lumen

Colorectal Cancer

Outcome Management

- Medical Management
  - Decrease Tumor Growth,
  - Chemotherapy, & Radiation
- Surgical Management
  - Resection
  - Colostomy
  - Abdominal-Perineal Resection
Colorectal Cancer
Surgical Therapy

- The only curative treatment of colorectal CA
- Location, extent of cancer: type of surgery
- Duke’s staging (nodes, mets)
  - 90-100% 5-year survival: Stage A
  - <15% 5-year survival: Stage B

Pre-op bowel prep with Neomycin q4h for 2 days

Outcome Management: Surgical Client

Nursing Management

- Knowledge Deficit
- Risk for Injury: Post Op Complications
- Risk for Body Image Disturbance
- Risk for Ineffective Management of Therapeutic Regimen
- Risk for Sexual Dysfunction

Risk for injury:
Post-op complications:
- infection
- hemorrhage
- wound disruption
- thrombophlebitis

Stoma function

Open & Packed wounds
- Dressing changes w/ saline irrigations several times per day
- Observe and record
  - Drainage
  - Bleeding
  - Unusual odor

Partial closure w/ drains
- Observe and record as above +
  - Integrity of suture line
  - Edema
  - Fever, ↑ WBC
Colorectal Cancer Nursing Management

Risk for injury: Post-op complications: sexual dysfunction

- Important to recognize the different nerve pathways for:
  - Erection
  - Ejaculation
  - Orgasm

- Damage to one pathway may not involve the other 2 pathways

- Enterostomal therapist consult

Bowel Obstructions Non-Mechanical

- Post-operative Pseudo-obstruction
  - Collagen diseases
  - Neurologic
  - Endocrine

- Inflammatory Mesenteric Occlusion
  - Embolism
  - Abnormal bleeding
  - Valves
  - Arteries

- Lobar Pneumonia
- Pancreatitis
- Appendicitis
- Peritonitis
- Lumbar spine fracture

- Electrolyte imbalances

Bowel Obstructions Clinical Manifestations

- High
  - Rapid onset
  - Projectile vomiting of bile
  - Vomiting relieves pain
  - Distention minimal or absent
  - Metabolic alkalosis

- Low
  - Gradual onset
  - Vomitus – orange brown & foul smelling d/t overgrowth of bacteria
  - Distention
  - Metabolic Acidosis

- Large Bowel
  - Vomiting may be absent with competent ileocecal valve
  - Incompetent valve = vomits fecal material

- Bowel Sounds
  - High pitched
  - Over area of obstruction
  - Audible borborygmi
Bowel Obstructions - Diagnostic tests

- Abdominal x-rays
- GI series
- CBC
- Electrolytes
- Amylase
- BUN
- Stool

- Gas & fluid in intestines
- Intraperitoneal air - perforation
- Location of obstruction - barium not used if perforation is suspected
- ↑ WBC - strangulation or perforation
- ↓ Hb, Hct indicates bleeding
- ↑ Hb indicates hemoconcentration
- ↓ Na, K, Cl in obstruction, ↑ amylase indicates pancreatitis
- ↑ BUN indicates dehydration
- + FOB screens for bleeding

Bowel Obstructions - Collaborative Management

Decompression

Correct & maintain fluid balance

Relief or removal of obstruction

- NG tubes
- Intestinal tubes - (controversial)
- Sigmoid tubes - to reduce volvulus
**Bowel Obstructions – Collaborative Management**

**Correct & maintain fluid balance**

- IV normal saline w/ K+
- TPN to correct nutritional deficiencies

**Bowel Obstructions – Collaborative Management**

**Relief or removal of obstruction**

- surgery
- colonoscopy