Student Name: Kali Barnes
Medical Diagnosis/Disease: Crohn's Disease

NCLEX IV *(8)*: Physiological Integrity/Physiological Adaptation

Anatomy and Physiology

Normal Structures

GI tract is from mouth to anus, 4 layers, mucosa lining, submucosa connective layer (contains glands, blood vessels and lymph nodes) muscle (oblique, circular, longitudinal) and serosa, around soft organs include mouth, esophagus, stomach, small/large intestine, rectum, anus, liver, pancreas, gallbladder. Enteric nervous system (ENS) controls GI motility and secretions, 2 parts: submucosal plexus (secretion/sensory functions) myenteric plexus (nerve supply/movement). portal vein takes venous blood from GI tract to liver. celiac (stomach/duodenum), superior mesenteric (distal small intestine to mid large intestine) and inferior mesenteric (distal large intestine to anus) arteries supply blood to GI tract.

Pathophysiology of Disease

- Inflammatory bowel disease, chronic, remission and exacerbations.
- Involves any segment of the GI tract from mouth → anus
- cobblestone of mucosa
- no known cause
- ulcers are deep, longitudinal, penetrate
- autoimmune disease, overactive, inappropriate, or sustained immune response to environmental and bacterial triggers → genetically susceptible people = inflammation which causes widespread tissue destruction
- Distal ileum/proximal colon usually effected
- inflammation skips

NCLEX IV *(7)*: Reduction of Risk

Anticipated Diagnostics

Labs
CBC (iron deficiency)
SED rate
Serum chem
WBC

Additional Diagnostics
H+P, capsule endoscopy)
Stool culture (blood/infection), radiologic studies w/ barium contrast, colonoscopy w/ biopsy, MRI, CT

NCLEX II *(3)*: Health Promotion and Maintenance

Contributing Risk Factors

- Race (white/Jewish)
- Age (teenage/early adulthood)
- location (urban)
- Diet, smoking, stress
- Use of NSAIDs, abx and oral contraceptives
- Genetics (family with it ↑ chance of getting it)

sugars → manufactured

Signs and Symptoms

- Diarrhea
- weight loss
- abd pain, cramping
- fever
- Fatigue
- rectal bleeding
- vomiting

NCLEX IV *(7)*: Reduction of Risk

Possible Therapeutic Procedures

Non-surgical
Elemental diet/PN, ↑ calorie, vitamin, protein, ↓ residue, lactose free diet

Surgical
bowel resection
strictureplasty

Prevention of Complications

(What are some potential complications associated with this disease process)

Cancer
C. diff infection
Perforation
Strictures
SBS
Bleeding

NCLEX IV *(6)*: Pharmacological and Parenteral Therapies

Anticipated Medication Management

Aminosalicylates (↓ inflammation)
Antimicrobials (tx infection)
Biologic therapies (inhibit TNF)
Corticosteroids (↓ inflammation)
Immunosuppressants (↓ immune system)
Analgesics

NCLEX IV *(5)*: Basic Care and Comfort

Non-Pharmacologic Care Measures

- Rest promotion
- Support group
- monitor fluids/nutrition
- monitor stool

NCLEX III *(4)*: Psychosocial/Holistic Care Needs

What stressors might a patient with this diagnosis be experiencing?

- fear of surgery
- fear of exacerbation
- fear of malnutrition
- fear of death
- fear of unknown

Client/Family Education

List 3 potential teaching topics/areas

- Type of diet
- Things to avoid to prevent exacerbation that will mess w/ microflora (stress)
- Medication regimen

NCLEX I *(1)*: Safe and Effective Care Environment

Multidisciplinary Team Involvement

(Which other disciplines do you expect to share in the care of this patient)

- GI, doctor, nurse, nutrition, surgery

peristalsis - segmentation

A+P:

Peritoneum covers abdominal organs: parietal layer- lines abdominal walls, visceral layer- covers organs, peritoneal cavity is the space between these 2 layers, 2 folds in peritoneum: mesentery which attaches the ~~sm~~small and part of the large intestine to the posterior abdominal wall (it contains blood and lymph vessels), omentum hangs like an apron from stomach → intestines, contains fat and lymph nodes. main function of GI is to supply nutrients to body cells, maintain nutrition, eliminate waste. steps: Ingestion, digestion, absorption, elimination.

Ingestion: take in food, appetite is the desire to take in food which is controlled by the hypothalamus, ghrelin stimulates hunger, leptin suppresses hunger. Deglutition is swallowing the mechanical portion of ingestion involving mouth, pharynx, esophagus.

mouth: where food goes to be chewed (mastication), teeth tear/break food apart, tongue moves food. taste buds taste food. has 3 salivary glands that participate in chemical breakdown/emulsifying the food. Parotid, submaxillary, sublingual, enzyme in saliva is ~~amy~~ amylase (sugar).

Pharynx: nasopharynx, oropharynx, laryngeal pharynx. oropharynx is passageway from mouth to esophagus. food/liquids in back of throat signal receptors to swallow, epiglottis covers larynx and food continues down esophagus

esophagus: (has UES, and LES (sphincter(s)) hollow muscular tube moves food from mouth to stomach (7-10 in, 2cm wide) in thoracic cavity, 4 layers: inner mucosa, submucosa, muscularis propria, and outermost adventitia, upper 1/3 is skeletal muscle, lower 2/3 smooth. peristalsis (wave like movement) moves bolus.

Digestion & Absorption: stomach: Store/mix food, empty small amounts into small intestine, absorbs small amounts of water, alcohol, electrolytes, some drugs. J shaped organ in the left upper quadrant. 3 parts: fundus, (cardia) body, antrum, has LES and pyloric sphincter, 4 layers: serous (outer), muscular/longitudinal outer layer, circular middle layer, oblique inner layer. rugae made by mucosal layer. fundus has glands that ~~secrete~~ chief cells that secrete pepsin (protein) and intrinsic cells that secrete hydrochloric acid, water, intrinsic factors, lipase (fat). makes chyme
→ protects against ingested organisms
→ vitamin B12 absorption in small intestine

small intestine: digest & absorb (nutrients from lumen to bloodstream) 23ft, 1-1.1 in wide, from pylorus to ileocecal valve (prevents reflux from large to small intestine), 3 parts: duodenum, jejunum, and ileum. functional unit is ~~villi~~ villi, produce intestinal digestive enzyme ~~(trypsin)~~ lipase, amylase, aminopeptidases, lactase, peptidases), microvilli on villi to increase surface area which allows for more digestion & absorption, Brunner's glands secrete bicarbonate which neutralizes HCl. intestinal goblet cells secrete mucus to protect mucosa. (trypsin is an enzyme here) Pancreas secretes amylase, trypsin, lipase and chymotrypsin into small intestine. sugars, fatty acids, some water, electrolytes, vitamins, and minerals are absorbed

Elimination: large intestine: ascending, transverse, descending, sigmoid, 6ft, 2in wide, absorbs water and electrolytes, forms feces. microorganisms in the large intestine produce vitamin K/B, and breakdown proteins that are not digested or absorbed in small intestine, into amino acids. → ammonia → liver → urea → excreted kidneys. Bacteria produces ~~gas~~ gas. sensory nerves are stimulated when ~~feces~~ defecation is needed. Valsalva maneuver promotes defecation, deep breath, hold, bear down.

Liver: lobules = functional unit, rows of hepatocytes w/ sinusoids (capillaries) inbetween lined w/ Kupffer cells which carry out phagocytic activities (removing bacteria + toxins from blood). canaliculi become left/right hepatic ducts. makes bilirubin from breakdown of hemoglobin. when in bloodstream binds w/ albumin = unconjugated, insoluble in water and transported to liver there made into conjugated, ~~by~~ with glucuronic acid and excreted in bile into intestine

Biliary Tract: gallbladder concentrates + store bile, cholecystokinin stimulates gallbladder when fat is in upper duodenum. hepatic duct recieve bile from canaliculi in the liver lobules. left/right hepatic ducts = cystic duct from the gallbladder to form common bile duct. bile enters duodenum through ampulla of vater.

Pancreas: head, body, tail, releases enzymes for digestion via common bile duct. controls ~~insulin~~ sugar levels.

Patient Problems (Nursing Diagnoses)

List two potential patient problems you will be addressing as part of your nurse's notes, along with clinical reasoning, goals/expected outcomes, assessments, and priority nursing interventions. The patient problems must be in priority order. Six nursing interventions for each priority problem must be completed.

Problem # 1 : Acute pain : Abdomin
Clinical Reasoning: Crohn's Disease, IBS, inflammation

Goal/EO: reports pain level lower than 5/10 on the numeric pain scale during my care.

Ongoing Assessments: Assess pain q2hr, Assess PQRST q2hr, Assess preferred pain management tool qshift, Assess VS - HR, BP, RR q4hr

NI:
1. Administer analgesics as ordered
2. Administer medication regimen as ordered (Aminosalicylic acid, corticosteroids, Immunosuppressants, Biologic therapies, Antimicrobials)
3. Educate on diversional activities prn (TV, reading)
4. Educate on foods/diet that will not cause exacerbation prn
5. Educate on ways to avoid an exacerbation prn (avoid stress, illness, etc.)
6. Provide rest prn
7. Educate on medication regimen prn

Problem # 2 : Imbalanced nutrition : less than body requirements
Clinical Reasoning: Crohn's Disease, IBS, inflammation

Goal/EO: Weight will stay within 10% of ideal weight range during my care.

Ongoing Assessments: Assess weight daily, Assess favored food qshift, assess favored fluid qshift, Assess patterns of bowel elimination qshift/prn

NI:
1. Administer Vitamin and Mineral supplements as ordered
2. Educate on high calorie/vitamin/protein, ↓ residue, lactose ~~free~~ diet prn
3. Administer Anti-diarrhea or stool softener as needed
4. Administer TPN as perscribed/prn
5. Encourage to eat favored foods prn
6. Encourage to drink favored beverage prn
7. Educate on taking weight daily
8. Educate on what stool should look like prn (long, soft, smooth, firm but moist, medium - brown in color)

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Kali Barnes

MEDICATION Infliximab (IV), Remicade REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antirheumatic, immunosuppressant agent

PURPOSE OF MEDICATION

Expected Pharmacological Action

Binds to tumor necrosis factor (TNF), inhibiting functional activity of TNF (induction of proinflammatory cytokines, enhanced leukocytic migration, activation of neutrophils/esinophils). Prevents disease and allows diseased joint to heal. Decreases inflammation.

Therapeutic Use

Tx for psoriatic arthritis (RA), reduces s/sx, induces, and maintains remission in moderate to severe active crohn's disease. Maintains fistula closure in fistulizing crohn's disease. Reduces s/sx of active ankylosing spondylitis.

Complications

Side effects: headache, nausea, fatigue, fever, chills during infusion, pharyngitis, vomiting, pain, dissiness, bronchitis, cough, hypo/hypertension, anxiety, depression, diarrhea.
Adverse reactions: sepsis, hypersensitivity reaction, lupus-like syndrome, severe hepatic reaction, HF.

Medication Administration

Administration: reconstitute each vial with 10mL sterile water injected into vial, swirl vial, allow solution to stand for 5 mins then inject into 250mL bag NS, concentration should be 0.4-4 mg/mL. Administer over at least 2 hours using low protein-binding filter.
Dosage: Crohn's disease: 5mg/kg followed by additional doses at 2 and 6 weeks after first infusion, then q8 weeks there after. 10mg/kg are for those who respond less.

Contraindications/Precautions

Contraindications: hypersensitivity, moderate to severe HF, sepsis, severe infection.
Precautions: hematoloic abnormalities, hx of COPD, seizures, mild HF, hx of reccurrent infections, pt exposed to TB, elderly pts, chronic hepatitis B virus infection.

Nursing Interventions

Monitor urinalysis, erythrocyte sedimentation rate, BP, monitor for infection, monitor daily pattern of bowel activity, and stool consistnecy. monitor c-reactive protein, frequency of stools, assess for abdominal pain.

Interactions

Drug: anakinra, anti-TNF agents, baricitinib may increase adverse effects. May decrease effect of BCG, vaccines (live).
Herbal: echinacea may decrease effect.
Food: none
Lab values: may increase serum alkaline phosphatase, ALT, AST, bilirubin.

Client Education

Report persistent fever, cough, abdominal pain, swelling of anles/feet. Tx may depress immune system, report signs of infection, do not recieve live vaccines, expect fequent TB tests, report travel plans to possible endemic areas.

Evaluation of Medication Effectiveness

Decreases inflammation or s/sx of inflammation. No s/sx of Crohn's disease.

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Kali Barnes

MEDICATION Morphine (IV), Kadian REVIEW MODULE CHAPTER

CATEGORY CLASS Opioid analgesic

PURPOSE OF MEDICATION

Expected Pharmacological Action

Binds with opioid receptors within CNS, inhibiting ascending pain pathways. Alters pain perception, emotional response to pain.

Therapeutic Use

Management of pain.

Complications

Side effects: nausea, vomiting, sedation, decreased BP, diaphoresis, facial flushing, constipation, dizziness, drowsiness, allergic reaction, abdominal cramps, confusion, vision changes, decrease appetite, paralytic ileus.
ANTIDOTE: Naloxone

Contraindications/Precautions

Contraindications: hypersensitivity, acute/severe asthma, GI obstruction, severe respiratory depression, paralytic ileus, COPD, corpulmonale, hypoxia, severe hypotension.
Precautions: biliary tract disease, pancreatitis, addison's disease, cardiovascular disease, CNS depression, drug seeking-behavior, dependency.

Interactions

Drug: alcohol and other CNS depressants can increase effect.
Herbal: herbals with sedative properties (chamomile) may increase effect.
Food: none
Lab values: may increase serum amylase, lipase.

Evaluation of Medication Effectiveness

Pain level decreases.

Medication Administration

Adminstration: IV: may give undiluted, may dilute with NS to 1-2mg/mL concentration for IV injection, for IV infusion dilute to concentration of 0.1-1mg/mL in D5W and give through controlled infusion device.
Dosage: IV: Adults/Elderly: 2.5-5mg q3-4hr as needed, 1-2mg may be given every hour.
Dosage: Continuous IV infusion: Adults/Elderly: 0.8-10mg/hr, Range: 20-50 mg/hr.
Onset: rapid
Peak: 0.3hr
Duration: 3-5hr

Nursing Interventions

RR less than 12 contact physician, monitor VS 5-10min IV admin, 15-30min after SQ/IM. Be alert of decrease RR or BP, check for adequate voiding, avoid constipation, initiate deep breathing, coighing exercises, assess clinical improvement, record onset of pain relief, screen for drug use of abuse, drug seeking-behavior.

Client Education

Change positions slowly to avoid othrostatic hypotension, avoid tasks that require alertness, avoid alcohol and CNS depressants, dependency may occur, report ineffectice pain control, constipation, urinary retention.