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Medical Diagnosis/Disease: Crohn's

**NCLEX IV** *(8)*: **Physiological Integrity/Physiological Adaptation** **NCLEX IV** *(7)*: **Reduction of Risk**

## Anatomy and Physiology

### Normal Structures

**GI system**: consists of mouth, esophagus, stomach, small & large intestine, rectum, and anus. Accessory organs: liver, gallbladder, and pancreas.

**Functions**: ingestion (taking in food), digestion (chemical and physical breaking down food into absorbable substances), absorption (uptake of nutrients from small intestine to bloodstream), elimination (excretion of waste)

**Layers**: mucosal lining (protection, secretion, absorption), submucosa (contains glands, blood, lymph vessels, & lymph nodes), muscularis (smooth muscle in circular and longitudinal layers used for motility), serosa (outer covering for protection), peritoneum (line abdominal cavity and forms peritoneal cavity) contains mesentery (blood & lymph vessels) & omentum (fat)

**Parasympathetic**: increase paralysis & speeds up motility

**SNS**: decrease stimulation & slows down motility

**ENS**: regulates motility & secretions along GI tract

**Circulation**: venous blood from GI tract empties into the portal vein & carries nutrients to the liver. Aorta to celiac artery and superior and inferior mesenteric arteries

Superior and inferior mesenteric arteries supply small and large intestines GI tract receives 25-30% CO at rest and 35% or more after eating.

**Secretions**:

Mucus: lubrication & protection from mouth down to anus

Digestive secretions: breakdown food for absorption (enzymes, hormones, digestive juices, bile, and pancreatic juices)

Motility: peristalsis (wavelike movement, expands lumen by food), helps move food through digestive system.

Gastrocolic & Duodenocolic Reflex – Triggers the urge to defecate after eating.

Bacteria: needed for function & important for the colon.

**Organs**

**Mouth**: functions: Chewing (mastication) mechanically alter food/break apart & add saliva, swallowing (deglutition), taste, speech, expression.

**Salivary glands**: parotid, submaxillary, sublingual (secrete 1000-1500 cc saliva daily). Saliva contains amylase which starts digesting starches.

**Pharynx**: nasopharynx, oropharynx, and laryngopharynx. Helps regulate swallowing (deglutition) begins voluntarily, then becomes an involuntary swallowing reflex, transported to stomach by peristalsis.

**Esophagus**: transports food to stomach. Contains UES and LES (prevents reflux of acid into the esophagus)

## Pathophysiology of Disease

Crohn's: inflammatory bowel disease that causes chronic inflammation of GI tract and periods of remission and exacerbation. Can involve any portion of GI tract (mouth to anus). An autoimmune reaction to the persons intestinal tract, from overactive, inappropriate, or sustained immune response, but exact cause is unknown. Causes widespread tissue destruction. Big link with family history of IBD, as well as diet, smoking, stress, and changes in GI microbial flora.

Location: anywhere along GI tract most common site is distal ileum & proximal colon.

Cobblestoning of mucosa, entire thickness of bowel wall involved. Healthy tissue interspersed with areas of inflammation (skip lesions).

Ulcerations are deep, longitudinal, and penetrate between inflamed edematous mucosa. Stricture at areas of inflammation can lead to obstruction. Possible microscopic leaks can lead to bowel contents entering the peritoneal cavity and cause peritonitis. Fistulas are also common.

White & Ashkenazic Jews have higher incidence. Over 1.3 million Americans have a form of IBD. Strong link with family history & monozygotic twins. Common genetic links: NOD2, ATG16L1, IL23R, & IRGN. Also more likely to occur with another genetic disorder such as CF, or inflammatory diseases such as MS.

## Anticipated Diagnostics

### Labs

CBC

CMP

ESR & CRP

Stool cultures & occult blood

Biopsy

Genetic testing

### Additional Diagnostics

Barium enema

Small bowel series

CT

MRI

US

Colonoscopy

EGD

**Stomach**: mixes food with gastric secretions, stores food, regulates rate of emptying into small intestine. LES: esophagus & stomach, pyloric sphincter: stomach & duodenum (regulates movement of food into small intestine).
**Secretions**: helps breakdown different food parts. Gastrin stimulates secretion of gastric juices. By parietal & chief cells. Parietal cells: secrete HCL & IF. Chief cells: make pepsinogen, which converts to pepsin for protein digestion. Mucous neck cells: alkaline mucous to lubricate and protect stomach lining. Pyloric glands: secrete mucous
Gastric emptying: controlled by nerve impulses, chyme (composition effects rate of emptying), & hormones. Vagal stimulation increases emptying rate, distension and exercise decrease rate. Fats & acidic chyme trigger the enterogastric reflex, slowing gastric motility to allow time for pancreatic neutralization.
**Small intestine**: site of most digestion & absorption of major nutrients, about 23 ft long. Villi (fingerlike projections): increase surface area and help improve absorption.
Duodenum & jejunum: absorbs carbs, amino acids, lipids, iron, Ca.
Ileum: absorbs water (8 L/day), electrolytes, bile salts, and vitamins. End part of the small intestine.
**Large intestine**: absorption of water & electrolytes, excretion of waste products (5-6 ft). stores feces until elimination. 4-part ascending, transverse, descending, & sigmoid. Contains lots of bacteria that help breakdown nutrients not digested by the small intestine. Movement is usually slow but propulsive (mass movements) when the colon becomes filled or after the first meal of the day. Peristalsis forms haustra, breaking chyme into large pockets, extracting water, and forming solid feces.
**Rectum**: connects sigmoid colon to anus, storage & excretion of stool. Internal sphincter (involuntary control, with autonomic nerves), external sphincter (voluntary control, with somatic nerves). Defecation reflex: feces stretches muscle and cause distention in rectum, PSNS relaxes sphincter, muscles contract to move feces out of body.
**Liver**: largest internal organ, located in URQ.
Functions: bile production & secretion, carbohydrate, protein, fat metabolism, forming clotting factors, vitamin & mineral storage, filtration & detoxification, blood storage.
Lobule: functional units are hepatocytes. Kupffer cells: reticuloendothelial cell that removes toxins, bacteria, & old RBCs in blood via phagocytosis.
Portal vein: 75% blood to liver.
Hepatic artery: 25% as oxygenated blood. 25-30% CO, (1500 cc per minute). Returns via inferior vena cava & hepatic veins.
Gall bladder & biliary tract:

**Gallbladder**: stores bile made by liver (bile emulsifies fat). Common bile duct empties bile into the duodenum at Ampulla of Vater. Sphincter of Oddi: controls flow of bile into intestine. Presents of fat triggers release of cholecystokinin-pancreozymin from duodenum which stimulates gallbladder to contract and release bile. Secretin stimulates liver to produce more bile.
Bilirubin: pigment from the breakdown of Hgb (main component is bile), in intestine converted to urobilinogen by bacteria and excreted in feces. 1% reabsorbed by blood and excreted by kidneys.
**Pancreas**: exocrine & endocrine functions. Exocrine releases enzymes to help digestion (500-1000 cc/day), pH- 8.3 to neutralize acidic chyme. Enters duodenum via pancreatic duct to common bile duct.

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

| Contributing Risk Factors | Signs and Symptoms | Possible Therapeutic Procedures | Prevention of Complications |
|---|---|---|---|
| Family hx (genetic component)<br>Smoking<br>Diet (high refined sugar, fats)<br>Stress<br>Changes to GI microbial flora<br>NSAIDs, abx, oral contraceptives<br>Other genetic syndromes or inflammatory disorders<br>Race (white) | Diarrhea<br>Abdominal pain (cramping)<br>Malabsorption<br>Weight loss<br>Intermittent fever | Non-surgical<br>Parenteral nutrition<br>Surgical<br>Resecting disease portions of GI tract & anastomosis of remaining intestine<br>Strictureplasty<br>Treatment of complications (fistulas, obstruction, perforation, strictures, hemorrhage)<br>Ostomy | Nutritional deficiencies<br>Dehydration<br>Electrolyte imbalances<br>Small intestinal cancer<br>C. diff<br>Perforation<br>Perianal abscess<br>Strictures<br>Hemorrhage<br>Bleeding<br>Abscesses<br>Fistulas<br>Colorectal cancer<br>Liver disease<br>Osteoporosis<br>Short bowel syndrome |

**NCLEX IV** *(7)*: **Reduction of Risk**

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

| Anticipated Medication Management |
|---|
| Aminosalicylates<br>Antimicrobials<br>Corticosteroids<br>Immunomodulators<br>Biologic therapies |

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

| Non-Pharmacologic Care Measures |
|---|
| Dietary changes<br>Enteral therapy<br>Rest<br>Learning and avoid triggers<br>Proper hydration |

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

| What stressors might a patient with this diagnosis be experiencing? |
|---|
| Effects on family dynamics<br>Financial stress<br>Being overwhelmed<br>Job-related stress/loss of job<br>Changes to routine<br>Pain<br>Body image<br>Feeling isolated<br>Genetic component |

**Client/Family Education**

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

| List 3 potential teaching topics/areas | Multidisciplinary Team Involvement<br>(Which other disciplines do you expect to share in the care of this patient) |
|---|---|
| ○ Proper nutrition/diet (high calorie, protein, & vitamin)<br>○ When to seek medical care for potential complications<br>○ How to identify triggers and avoid them/making a log of symptoms and foods | Gastroenterologist<br>Dietitian<br>Colorectal surgeon<br>Genetic counselor<br>Social work/case management |

# Potential Patient Problems (Nursing Diagnoses)

**To Be Completed Before the Simulation**

Anticipated Patient Problem: Deficient fluid volume

Clinical Reasoning: Diarrhea, blood loss (GI bleed), poor PO intake

| **Relevant Assessments**<br><br>(Prework) What assessments pertain to your patient's problem? Include timeframes. | **Multidisciplinary Team Intervention**<br><br>(Prework) What will you do if your assessment is abnormal? |
|---|---|
| Assess I&O q4 & prn | Administer IVF as prescribed & prn |
| Assess frequency and consistency of stools q8 &prn | Administer antidiarrheals, encourage high fiber diet to bulk up stools q4 & prn |
| Assess electrolytes (K+, Na, Cl) q12 | Administer replacement electrolytes (potassium chloride, LR) prescribed & prn |
| Assess skin turgor & mucous membranes q4 & prn | Encourage PO fluids q2 & prn |
| Assess vitals (especially HR, BP) q2 & prn | Educate about not getting OOB w/o assistance, change positions slowly, report any dizziness to RN q2 & prn |
| Assess weight daily in am (a decrease can be sign of fluid volume deficit) | Document weight, trend it w/ past weights, notify provider if significant change (after AM weight) |

Goal 1: Will have urine output of > or = to 30 mL/hr during time of care

Goal 2: Will have BP between 90/60 – 120/80 & HR between 60-100 during time of care

**To Be Completed Before the Simulation**

Anticipated Patient Problem: Acute pain

Clinical Reasoning: IBD (Crohn's), GI bleed

Goal 1: Will have a pain score of >3/10 during time of care

Goal 2: Will state 2 non- pharmacological pain management techniques during time of care

| **Relevant Assessments**<br><br>(Prework) What assessments pertain to your patient's problem? Include timeframes. | **Multidisciplinary Team Intervention**<br><br>(Prework) What will you do if your assessment is abnormal? |
|---|---|
| Assess current pain level on a scale from 1-10 & for location and characteristics of pain q2 & prn (shooting, stabbing, dull, etc.) q2 & prn | Give prescribed analgesics based on pain rating prn |
| Assess vital signs (HR, BP, RR, SpO2) q2 & prn | Provide a quiet comfortable environment to promote rest and healing q2 & prn |
| Assess nonverbal cues indicating pain (grimacing, guarding, withdraw) q2 & prn | Ask about any pain & educate about pain relief techniques q2 & prn |
| Assess for any nausea or vomiting that accompanies pain q2 & prn | Give antiemetic as prescribed & prn |
| Reassess pain after giving analgesics (30 min after admin) | Notify provider if analgesics did not help alleviate the pain prn |
| Assess knowledge of non-pharmacological pain management strategies q4 & prn | Educate about use of deep breathing, heat/cold therapy, distraction q4 & prn |

**To Be Completed During the Simulation:**

**Actual Patient Problem: Deficient fluid volume**

**Clinical Reasoning: GI bleed (blood loss)** Goal: Will have BP between 90/60 – 120/80 & HR between 60-100 during time of care Met: ☐ Unmet:☐

Goal: Will have urine output of > or = to 30 mL/hr during time of care

Met: ☐ Unmet:☐

**Actual Patient Problem Acute pain**

**Clinical Reasoning: GI bleed, Crohn's, transfusion reaction to RBC** Goal: Abdominal pain will be < 3/10 during time of care Met: ☐ Unmet:☐

Goal: Will state 2 non- pharmacological pain management techniques during time of care

Met: ☐ Unmet:☐

Additional Patient Problems: Deficient knowledge

Below will be your notes, add more lines as needed. **Relevant Assessments:** Indicate pertinent assessment findings. **Multidisciplinary Team Intervention:** What interventions were done in response to your abnormal assessments? **Reassessment/Evaluation:** What was your patient's response to the intervention?

| Patient Problem | Time | Relevant Assessments | Time | Multidisciplinary Team Intervention | Time | Reassessment/ Evaluation |
|---|---|---|---|---|---|---|
| Acute pain | 1300 | Abdominal pain (top of stomach) of 6/10 "sore & crampy" Headache | 1310 | Contacted Dr to order acetaminophen for antipyretic and analgesic | 1310 | Headache is gone and abdominal pain is better |
| Deficient fluid volume | 1300 | Feeling "more lightheaded and dizzy" "I feel like I'm going to faint & throw up" General ill appearing | 1300 | Applied O2 via NC, and gave cold cloth for forehead | 1305 | VS: 94/56. HR: 110, RR: 26, SaO2: 94% |
| Deficient fluid volume | 1300 | VS: 94/56. HR: 110, RR: 26, SaO2: 94% | 1305 | Applied O2 2L NC | 1310 | 100/60, HR: 114, RR: 22, SaO2: 95% 2 L NC |
| Deficient fluid volume | 1300 | Hgb 7, hct 21%, appearing pale | 1310 | Administer packed RBCs<br>Reports headache and body ache all over | 1310 | Face flushed reports headache, VS: 38.8, HR: 96, RR 22, BP: 103/60, stop blood transfusion |

| | | | | | | |
|---|---|---|---|---|---|---|
| Deficient fluid volume | 1300 | GI bleed, serosanguineous blood in ileostomy bag | 13101 | Schedule endoscopy to look for bleeding | 1310 | Endoscopy found active bleed but was able to stop it |
| Acute pain | 1320 | Pain 8/10, tender abdomen (cramping & discomfort in stomach), | 1320 | Administered IV morphine 4 mg | 1320 | Pain 2 or 3 out of 10 "feel pretty good now" |
| Deficient knowledge | 1330 | Drinks up to 5 glasses of alcohol a day, has a very high stress job. | 1330 | Educate about reducing drinking & other methods to relax | 1330 | Verbalized stress management strategies & proper diet |

**ATI Virtual Clinical Questions and Reflection:**

1) Identify two members of the healthcare team collaborating in the care of this patient:
    a. **Registered nursing**
    b. **Gastroenterologist**
2) What were three steps the nursing team demonstrated that promoted patient safety?
    a. **Got 2 RNs to verify the blood before transfusing it.**
    b. **Stopped the blood transfusion immediately after Ms. Lieberman was showing signs of a reaction**
    c. **Asked Ms. Lieberman 2 identifiers before administering medication**
3) Do you feel the nurse and medical team utilized therapeutic communication techniques when interacting with individuals, families, and health team members of all cultural backgrounds?
    a. If **yes**, describe: I feel like the nurse did a very good job using therapeutic communication with Ms. Lieberman, especially when discussing her lifestyle and how to make changes to better her health. All the staff was very kind and friendly and wanted to help Ms. Lieberman and each other.
    b. If **no**, describe:

**Reflection**

1) Go back to your Preconference Template:
    a. Indicate (circle, star, highlight, etc.) the components of your preconference template that you saw applied to the care of this patient.
2) What was the priority nursing problem? Provide rationale.

The priority problem with Ms. Lieberman deficient fluid volume relating to her GI bleed. She had lost a significant amount of blood, as evidenced by the blood in her ileostomy bag, and her Hgb was 7 and Hct was 21%. While she was admitted, she had NS 1,000 mL running at 150 mL/hr & was given 1.5 units of blood. To help increase her blood volume and prevent dehydration & hypervolemia.

3) Review your Patient Problem Form: Did you see many of your anticipated nursing assessments and interventions used? In the simulation, they were closely monitoring Ms. Lieberman's vitals, as well as assessing her pain level & location; they also ensured to reassess her pain after giving the morphine.

    a. Were there interventions you included that *were not* used in the scenario that could help this patient?

        **i.** If **yes**, describe: Monitoring urine output for a more accurate assessment of overall fluid status, getting a daily weight, & assessing contents of ileostomy bag. For acute pain, they could have assessed knowledge of non-pharmaceutical pain management.

        **ii.** If **no**, describe:

4) After completing the scenario, what is your patient at risk for developing?

    a. Maladaptive coping

    b. Why? Due to her current coping mechanisms, she had previously stated including excessive alcohol consumption, poor diet, and a high-stress job. During our time of care, we provided education on ways to improve these coping mechanisms and implement other lifestyle changes. Hopefully she will utilize these tools to improve her stress and current coping mechanisms.

5) What was your biggest "take-away" from participating in the care of this patient? How did this impact your nursing practice?

    My biggest takeaway from this simulation was to be very cautious and always keep a close eye on patients who are receiving a blood product. The reactions can happen suddenly and become critical quickly. The symptoms can come off very subtly at first but can lead to major damage if not identified quickly. We should always be constantly monitoring patients' vital signs, especially for temperature and blood pressure, urine output, nausea, or chest pain, as these can be indicators of a hemolytic blood transfusion reaction.

    From this simulation, I also got to see what it might be like to care for someone younger, as I have primarily worked with older adults. Additionally, I also to go see a little bit about working with an ostomy.