MANAGEMENT OF CONSTIPATION AND DIARRHEA

INTERMED

LEARNING OBJECTIVES

At the end of this session each student should be able to:

1. Define constipation and highlight the risk factors, signs & causes.
2. Explain pharmacological and non pharmacological management of constipation.
3. Define and classify diarrhea.
4. Explain pharmacological and non pharmacological management of diarrhea.

WHAT IS CONSTIPATION?

Constipation is an acute or chronic condition in which bowel movements occur less often than usual or consist of hard, dry stools that are painful or difficult to pass. Bowel habits vary, but an adult who has not had a bowel movement in three days or a child who has not had a bowel movement in four days is considered constipated

RISK FACTORS FOR CONSTIPATION

The following factors can increase a person's likelihood of becoming constipated; however, these do not need to be present for constipation to occur:

- Female gender
- Over 65 years of age
- Low caloric intake (eating less food)
- Greater number of medications used
- Sedentary lifestyle (lack of exercise)
- Ignoring the urge to defecate

CAUSES OF CONSTIPATION

- Diet
- Lack of exercise
- Age
- Nerves, stress
- Ignoring the urge

Drug induced – pain medications, iron, calcium, blood pressure medications, etc

Disease States/Conditions – Multiple Sclerosis, hypothyroidism, hemorrhoids, Parkinson's, senility, Irritable Bowel Syndrome, pregnancy, diabetic neuropathy, etc.

SIGNS AND SYMPTOMS OF CONSTIPATION

- Infrequent defecation
- Nausea
- Vomiting
- Anorexia
- Feeling full quickly
- Stools that are small, hard, and/or difficult to evacuate
- Rectal bleeding
- Weight loss (in chronic constipation)

COMPLICATIONS OF CONSTIPATION

Constipation could lead to:

- Intestinal (Bowel) obstruction
- Laxative dependency
- Chronic constipation
- Hemorrhoids (Mass of dilated veins in swollen tissue)
- Spastic colitis (Irritable bowel syndrome)
- Hernia (Protrusion of an organ through the tear in the muscle wall)

PREVENTION OF CONSTIPATION

- High fibre diet
- Minimum fluid consumption of 1500mL daily
- Regular, **private** toilet routine
- Heed the urge to defecate (Always answer the call of nature, **always!!!**)
- Use of a laxative if using constipating medication or in presence of diseases associated with constipation
- Exercise

I'M CONSTIPATED, NOW WHAT?

Two approaches to consider:

- Non-drug Approach
- Drug Approach

Drug Approach

Use of Purgatives

Anti-constipation drugs are classified into 3 groups:

- **Laxatives (Mild).**
- **Purgatives (Moderate potency)**.
- **Cathartics (Potent).**

The term purgatives can be used to refer to the 3 groups, above!!!

General Adverse effects:

1. Cathartic habit and atonic colon.
2. Diarrhea, dehydration and hypokalemia.
3. Abortion and excretion in milk during lactation.

Types of Purgatives

1. Bulk purgatives.
2. Stimulant (irritant) purgatives.
3. Osmotic purgatives.
4. Lubricants.

BULK PURGATIVES: E.G. BRAN & METHYL CELLULOSE.

Mechanism of action: They pass in the gut unabsorbed; they absorb water causing distension of the intestine increasing peristalsis. They have mild action

- Are considered the safest agents and are suitable for long-term use
- Are the drug of choice for prevention; not for immediate relief

Uses: -

Constipation, Irritable bowel syndrome, Obesity, Gall bladder stones.

Adverse effects:

- Steatorrhea.
- Decreased Iron and Ca++ absorption.
- Hard stools and intestinal obstruction if not taken with plenty of fluids.

STIMULANT PURGATIVES

Mechanism of action: Stimulate autonomic plexuses thereby increasing peristalsis.

- Are usually given at bedtime and they usually provide overnight relief (work within 8-12 hours).

1. ***Cascara, Senna, Aloes***: - Contain *Emodin* alkaloids which are absorbed in intestine and excreted in colon leading to stimulation of peristalsis.
2. ***Bisacodyl***: - Stimulates large intestine (mild action; given before sleep).
3. ***Phenolphthalin***: - Potent colon stimulant with long duration (due to enterohepatic circulation).
4. ***Castor oil***: - stimulates small intestines. Potent, rapid onset (given in the morning)

OSMOTIC PURGATIVES: E.G. MAGNESIUM SULPHATE AND LACTULOSE

- Pull water into the colon and increase water content in the feces, thereby increasing bulk and stimulating peristalsis
- Are salts or saline product that may cause electrolyte imbalances if absorbed systemically
- Examples include: lactulose, sodium phosphate with sodium biphosphate, magnesium sulfate, magnesium hydroxide

LUBRICANTS

They soften stools;

1. Suppositories e.g. ***Glycerine***.
2. ***Docusate sodium***.
3. ***Evacuant enema***.
4. ***Liquid paraffin***.

Side effects of Liquid paraffin:

1. Decreases absorption of fats.
2. Aspiration liquid pneumonia.
3. Leakage causing eczema.
4. Granulomatous reaction in regional lymph nodes.

NON-DRUG MEASURES

- Increase calories in low calorie diets
- Have a regular bowel regimen: patients should attempt to have a bowel movement at the same time each day especially after breakfast since colonic activity is highest at that time. Patients should not repress the urge to defecate or spend prolonged periods of time at the toilet. Placing a footstool in front of the toilet helps elevate the thighs, thus placing the pelvis in the optimum position for defecation.
- Consume a high fibre diet: the target is **25-28g** of fibre daily
- Eat more fruits: apples, pears, and prunes contain the natural laxative sorbitol
- Exercise: inactivity is associated with constipation
- Weight loss: want BMI to be between 18.5-24.9

DRUG TREATMENT OF DIARRHEA

❑ DIARRHEA

- Diarrhea is an increase in stool weight, frequency (i.e. more than twice daily) or liquidity.

- Treatment of diarrhea involves both **pharmacological** and **non pharmacological** interventions.

CLASSIFICATION

- Acute <14 d
- Persistent >14 d
- Chronic > 30 d

CAUSES

1. Infectious (viral or bacterial)
2. Non infectious

TREATMENT OF DIARRHEA

Non-pharmacologic therapy:

Dietary management:

1. Discontinue consumption of solid foods and dairy products for 24 h (valuable in osmotic diarrhea)
2. For patients who are experiencing nausea and/or vomiting, a mild, digestible, low-residue diet should be administered for 24 hours.
3. If vomiting is present and uncontrollable with antiemetics, nothing is taken by mouth. As bowel movements decrease, a bland diet is begun.

Rehydration and maintenance of water and electrolytes

TREATMENT OF DEHYDRATION

- Increase fluid intake (fruit juice – contain glucose and potassium)
- Oral rehydration solution (ORS). The WHO formula contains glucose, sodium, potassium, chloride and bicarbonate in an isotonic fluid.
- Glucose concentrations between 80 – 120 mmol/L are needed to optimize sodium absorption in the small intestine. Glucose concentration > 160 mmol/L will cause osmotic diarrhea.
- Sodium concentration = 75 mmol/L (higher concentrations may cause hypernatremia)

Dose in mild/moderate diarrhea for adults: 2L/first 24 h followed by 200 ml per each loose stool

I. **Treatment of Acute Diarrhea**:

a) **Diet**: - Easily digested food and frequent intake of fruit drinks and tea to rest the bowel. Avoid high fiber food, fats and milk products.

b) **Rehydration**: - fluids containing glucose, Na+, K+, Cl-, bicarbonate or citrate.

- Oral rehydration in conscious patients.
- I.V fluids in severe cases.

c) Symptomatic treatment:

1. **Opioids** (e.g. ***Loperamide***);

Decreases stool number and liquidity and control fecal urgency.

Contraindicated in bloody diarrhea, high fever or systemic toxicity.

Atropine with *Diphenoxylate* is contraindicated in Acute diarrhea as they decrease GIT motility and lead to retention of toxins.

2. Drugs that increase gut viscosity: They provide a coat for bowel and absorb toxins e.g. ***Kaolin***, ***Pectin***, ***Bismuth subsalicylate***.
3. **Astringents**: They coagulate surface layer of mucosa e.g. ***Tannic acid***.

d) Antimicrobials: - They are used when there are signs of invasive pathogens (associated with fever, tenesmus and bloody diarrhea). They include agents against *shigella* and *salmonella* (1st Choice are **Fluoroquinolones**), amoebs and fungi.

II. Treatment of Chronic Diarrhea

1. **Treatment of underlying cause**.

2. **Avoid drugs producing diarrhea such as**:

- Oral broad spectrum antimicrobials.
- *Reserpine* and *alpha-methyl-dopa*.
- Magnesium antacids.
- *Colchicine*.
- Cholinomimetics.

3. **Diet**: - Easily digested food, frequent intake of fruit drinks, avoid high fiber foods.
4. **Symptomatic treatment**:

a) Opioids: -*Loperamide*

-*Diphenoxylate* + *Atropine*.

They decrease stool number and liquidity and control fecal urgency.

b) Drugs which increase gut viscosity e.g. ***Kaolin***, ***Pectin***, ***Bismuth subsalicylate***.

5. ***Clonidine***: - Reduces electrolyte secretion in secretory diarrhea and diabetes mellitus.
6. ***Cholestyramine***: - used in bile acid diarrhea.