

## **Module 6**

### **Gastrointestinal tract**

#### **Learning objectives:**

By the end of the chapter, non-specialist medical officers should be able to:

- Diagnose constipation, identify predisposing factors, prepare a basic treatment strategy and refer cases which require further evaluation
- Diagnose diarrhea, differentiate it from pseudo-diarrhoea, fecal incontinence and overflow diarrhea, identify its cause and manage diarrhea in the community setting
- Identify dyspepsia, gastroesophageal reflux and gaseousness from symptoms, identify serious causes needing further evaluation, and timely referral
- Diagnose anorexia from the symptoms, identify its etiology from symptoms, clinical examination and socio-economic history, identify alarm symptoms and signs needing investigation, advise dietary and medical treatment and follow up to ensure compliance

#### **Age related changes in the gastrointestinal tract:**

The normal age related changes in the gastrointestinal tract include loss of sense of smell, chewing efficiency and swallowing whereas taste, salivary output and enjoying food are preserved to some extent. However, loss of teeth may result in inability to chew food adequately. Dysmotility in the oesophagus, stomach and colon may be a part of ageing or related to an underlying disease process. There may be changes in gastrointestinal immunity, nutrient absorption and hepatic metabolism.

**The common problems encountered by the primary care physician are:** Anorexia, chewing difficulty, dysphagia, constipation, gastrointestinal reflux including heartburn, incomplete evacuation, diarrhoea, abdominal pain, bloating, haemorrhoids, melena and hematemesis.

Some of these are discussed below:

## CONSTIPATION

1. **Introduction:** Constipation is a very common symptom in the elderly. Cultural factors are also embedded in the psyche of some elderly who feel it is essential to pass a stool in the morning hours and on a daily basis.
2. **Definition:** Constipation is defined as : At least 2 of following symptoms for 3 months with onset 6 months before diagnosis:
  - a. Straining with more than 25% of defecations
  - b. Hard or lumpy stool with more than 25% defecations
  - c. Feeling of anorectal blockage
  - d. Sensation of incomplete evacuation
  - e. Less than 3 defecations in a week
  - f. Manual measures to facilitate stools
  - g. Insufficient criteria for Irritable Bowel Syndrome
3. **Pathophysiology:** With ageing there is a decrease in rectal compliance and sensation, and resting anal pressures while colonic transit is normal. Slow transit constipation is due to enteric nervous system dysfunction. With pelvic floor dysfunction there is paradoxical contraction of pubo-rectalis and external sphincter during the act of defecation.
4. **Aetiology:** In the majority of cases there may be no obvious cause.

**The predisposing factors** include low fibre and fluid intake, co-morbid medical disorders, medications and, in some cases, inability to sit on a toilet (bed bound patients) or privacy and comfort.

**Recent onset** of constipation or a significant alteration in bowel habit indicates: Colonic carcinoma, anal fissure, painful hemorrhoids, new medication, and recent change in diet or reduced intake of fluids.

**Chronic constipation** may be indicative of irritable bowel syndrome when it is characterized by abdominal pain and alternating constipation and frequent stools. It may also be as a result of medications like anti-emetics, analgesics, calcium

channel blocker or anti-depressant drugs. Common supplements like iron and calcium, analgesics like opiates, anti-histamines and many other medications as well as systemic disorders like hypothyroidism or Parkinson's disease may also result in constipation. Constipation is increased during hospitalization, chronic illness or inability to have access to a suitable toilet facility.

## **5. Clinical Features:**

**a. General:** Patients may express constipation as infrequent, lumpy or hard stools, a need for excessive straining or manual evacuation, or a feeling of incomplete evacuation or blockage. However, a low stool frequency alone may not be the sole criterion for diagnosis of constipation. The clinician must look for symptoms and signs that indicate a serious illness. The aetiology and complications can be identified by a careful history, clinical examination including attention to the vital signs, evidence of dehydration, abdominal examination by palpation for tenderness and guarding, percussion for tympanic note suggestive of dilated gut loops, auscultation for increased or decreased bowel sounds, visual examination of the perianal area and gentle digital per rectal examination for fissure, hemorrhoids, rectal tone, faecoliths or impacted faeces or a mass.

### **b. Key questions:**

- i. What has been your usual bowel frequency and consistency?
- ii. Has there been a recent change towards constipation or is it long-standing (as far as you can remember)?
- iii. What is the consistency of stool? (Hard and pellet-like stools are due to slow transit. Hardness is also identified by need for enemas or digital evacuation)
- iv. Is the symptom explained by recent hospitalization, change in diet or starting of new medication or painkiller (codeine or similar product)?
- v. Is there history of habitual intake of purgatives, isabgol or over the counter home remedies (churan, pudin hara etc.)?

- vi. Is there pain in the abdomen? Is there vomiting? Is there blood in stools? Have you lost weight? Is there alternation with diarrhoea?

**c. Alarm symptoms and signs :**

- i. Acute onset
- ii. Abdominal pain
- iii. Recent change in bowel habits or stool caliber
- iv. Weight loss
- v. Rectal bleeding
- vi. Anemia

**6. Diagnosis:** Clinically constipation simply means hard, difficult to pass stools at a less than usual frequency. The diagnosis is made from history, clinical examination and definition (given above).

**7. Complications:** Constipation is of major concern to an elderly patient:

- a. Affects quality of life leading to depression
- b. Acute Confusional state (delirium)
- c. Fecal impaction
- d. Large bowel obstruction
- e. Rarely colonic perforation with a high mortality rate.

**8. Treatment:**

**a. General Measures**

- i. The history should identify the reversible causes of constipation, including drugs and recent change in diet.
- ii. A physical examination should rule out local causes like hemorrhoids, fissure and rectal mass.
- iii. Basic laboratory tests should be conducted to rule out underlying anemia or metabolic causes.

- iv. Symptomatic treatment in ambulatory and stable patients may be considered as under:
  - a) High fiber diet (15-25 grams per day) which should include chapattis, porridge, raw or cooked vegetables, fresh fruits, greens.
  - b) Adequate intake of water (6-8 glasses of water per day) which may be modified depending on the other co-morbid illnesses.
  - c) Regular activity or exercise depending on underlying functional status.
  - d) Toileting schedule should be reinforced.
  
- v. **Medications and other treatment include:**
  - a) **Bulking forming agents:** Soluble (Psyllium), Insoluble Bran or methylcellulose and polycarbophil. Guargum is used in dose of one tablespoonful once or twice a day. A simple and freely available source of fibre is Psyllium (Isabgol) which increases water content and bulk of stool and reduces transit time. It contains about 5 grams of psyllium husk per tablespoonful. (Please refer to the product label) Fibre should not be used when patient is on Opioids for pain relief.
  - b) **Osmotic agents:** They are not absorbed but attract water into the GIT e.g. Lactulose, Sorbitol (70%) and Polyethylene glycol (PEG). PEG3350 is a useful agent in a dose of 17 g in 240 ml water daily. It has onset in 6-24 hours. Lactulose is commonly used and safe 15-30 ml once to thrice daily.
  - c) **Suppositories:** Dulcolax ( Bisacodyl ) 10 mg or Glycerin may be used once daily.
  - d) **Enemas:** Mineral oil retention enemas (200 ml daily) is useful in cases with fecal impaction. Tap water enema (500 ml) may be used. Sodium phosphate enema (120 ml) may be used especially in pre-procedural preparation or acute constipation.

- e) **Stool softeners / surfactants:** They increase water secretion and act as detergents by increasing water penetration into stool e.g. Docusate sodium 100 mg once or twice daily. The onset of action is 1-3 days.
- f) **Stimulants:** They directly stimulate peristalsis and reduce colonic absorption of water e.g. Senna ( 2 tablets PO twice daily), Bisacodyl (5-15 mg PO daily) are often used as rescue agents when osmotic agents have not provided a satisfactory response. Prune Juice 120-240 ml per day may work in 6-12 hours.
- g) **Saline laxative :** Milk of magnesia 15-30 ml daily ( should not be used in chronic kidney disease)
- h) **Lubricants :** Liquid paraffin
- i) **Newer agents:** Lubiprostone, chloride channel activator linaclotide, or prucalopride (5 HT agonist) can be tried in difficult cases but should be left to the discretion of the specialist.

## 9. Referral indications

- a. Patient not responding to basic medical management
- b. Patient having severe constipation
- c. Acute abdomen (tenderness, guarding, reduced bowel sounds, obstruction or perforation).
- d. Patients with alarm symptoms mentioned above.

## 10. Key message

- a. Constipation has many secondary causes but usually is primary
- b. Diagnosis is made by a good history and clinical examination
- c. Treatment should be initiated by adequate fibre in diet, appropriate fluid intake, physical activity, identification and management of local causes and removal of medications that cause constipation.
- d. Patients with alarm symptoms should be referred for appropriate investigations and management by a specialist.

## DIARRHEA

1. **Introduction:** Diarrhea is exceedingly common problem and causing enormous toll of mortality, morbidity social inconvenience, loss of productivity and consumption of medical resources. It may often have adverse consequences in the elderly.
  
2. **Definition:** Diarrhea is defined as the passing of abnormal liquid or unformed stool at least 3 or more times in 24 hours. It is generally described by the patient as poorly formed, abnormally liquid stools at an increased frequency. It may be acute if duration is less than 2 weeks, persistent if 2-4 weeks and chronic if more than 4 weeks in duration.
  
3. **Pathophysiology:**
  - a. **Non-inflammatory diarrhoea:** It is usually watery, non-bloody, accompanied by bloating nausea, vomiting and suggestive of small bowel source. It is usually large volume diarrhoea. As there is disruption of normal absorption and secretory processes and is called secretory diarrhoea.
  - b. **Osmotic diarrhoea:** Sometimes people drink lots of sugar containing fluids resulting in drawing of water into the bowel lumen through osmotic action and this is called osmotic diarrhea.
  - c. **Exudative or inflammatory diarrhoea:** This is suggested by fever, the presence of blood and pus in stools. This form of disorder is usually due to colonic damage and is usually smaller in volume.
  
5. **Aetiology:** Cholera and use of exogenous stimulant laxatives are examples of non-inflammatory diarrhoea. Other causes are viruses, Giardia, preformed toxins from Staphylococcus aureus, Bacillus cereus or enterotoxogenic E coli.  
Common pathogens suggestive of infections including dysentery include Entamoeba histolytica (Amoebiasis), Entero-hemorrhagic E coli, Shigella, Salmonella, Yersinia, Campylobacter. Osmotic diarrhoea may occur in a chronic

form in pancreatic disease, celiac disorders as well as with use of osmotic laxatives or high sugar foods.

## 6. Clinical Features:

- a. **Acute Diarrhoea:** Diarrhea is usually self limited but may have serious consequences in elderly (over 70 years) , frail persons, those having multiple co-morbid illnesses, hospitalized or nursing home patients and those who have recently taken antibiotics. Most cases of diarrhoea are self-limited and do not need extensive work-up. The most common causes are infectious agents, pre-formed toxins, or medications. Infective causes need to be differentiated from non-infectious causes.
- b. At first it is important to identify whether the patient has some other conditions that may **mimic diarrhoeal illness:**
  - i. **Pseudo-diarrhoea:** In this there is frequent passage of small volumes of stools often with a feeling of tenesmus, incomplete evacuation, rectal urgency. This is seen in IBS and proctitis.
  - ii. **Fecal incontinence:** while diarrhoea may precipitate incontinence in the elderly, it is usually a result of structural ano-rectal problems and neuro-muscular disorders.
  - iii. **Overflow diarrhoea:** Among elderly, there may be spurious diarrhoea as a result of fecal impaction resulting in leakage and soiling of diapers or bed-clothes which is often attributed to “diarrhoea” by the relatives and patients. Simple rectal examination will identify fecal impaction.
- c. **Key Questions in a case with diarrhoea**
  - i. What is the duration of symptoms?
  - ii. Is it intermittent, persistent or chronic? (if > 2 weeks duration)
  - iii. If acute (<2 weeks) were other people also affected?
  - iv. Was there any dietary indiscretion?
  - v. Is there vomiting or fever?

- vi. What is the stool frequency and consistency?
- vii. Is the stool watery, semi-formed, frothy, floating in the pan and difficult to flush? Is defecation painful?
- viii. Is the passage of stool related to meal intake?
- ix. Is there history of laxative use? Has there been recent antibiotic use?
- x. Is there blood in stools?

d. **History related to aetiology:** A history of intake of stale, undercooked, poorly refrigerated or improperly stored food products including dairy products, butter, creams or meat products, contaminated water may identify the aetiology. One of the common modes of transmission is through faeco-oral route promoted by poor hand hygiene. The occurrence of community outbreaks may indicate a common source including cholera. A variety of medications including laxatives may also lead to diarrhoea. Some elderly people who travel to places of pilgrimage and may consume uncooked food or contaminated water may also develop diarrhoea or dysentery. Disturbances of flora by antibiotics can lead to *Clostridium difficile* related diarrhoea.

e. **Alarm Symptoms and Signs :**

- i. The occurrence of high fever (over 38.5 C)
- ii. Abdominal pain or tenderness.
- iii. Bloody diarrhoea
- iv. Duration of over 48 hours without improvement
- v. Profuse or troublesome diarrhoea (over 6 stools per day)
- vi. An older (over 70 years) and frail patient
- vii. Evidence of dehydration or metabolic disturbance: loss of skin turgor, altered sensorium, postural symptoms, including postural hypotension, loss of skin turgor, tachycardia , increased respiratory rate, decreased urine output

- viii. Exhaustion due to frequently going to the toilet. (As most toilet facilities in rural settings are of Indian type, the patient may have difficulty in squatting.)
- ix. Immunocompromised patients i.e. those on steroids, chemotherapy or post-radiation for cancer, or the occasional case with HIV infection

**7. Diagnosis:** Most episodes of acute diarrhea are mild and self-limited and do not justify the cost diagnostic or pharmacologic interventions. The decision to evaluate acute diarrhea depends on its duration, severity, frequency, consistency and volume, presence of blood, fever, and host related factors. Other factors include the presence of abdominal pain, cramping, recurrent or profuse vomiting, and multiple co-morbid illnesses. The cornerstone of diagnosis in those suspected of severe acute infectious diarrhea is a stool examination for ova, cysts, parasites and culture for bacterial pathogens. Evaluation for *Clostridium difficile* toxin is considered in hospital or antibiotic related diarrhoeas.

**8. Complications:** include dehydration, hypotension, electrolyte imbalance, sepsis, anemia, renal failure and cardiovascular collapse.

**9. Treatment:**

- a. Important preventive practices include:
  - i. Hand washing before and after food intake and toilet use.
  - ii. Avoid consumption of unwashed cut fruit, stale food and items sold by street vendors.
  - iii. Ensure proper storage and refrigeration of perishable items of food including bakery, butter and cream, foods and meat products.
  - iv. Drink boiled and cooled water.
- b. Treatment :
  - i. Fluid and electrolyte replacement are of importance to all forms of diarrhea. Mild diarrhoea may easily be treated with oral fluids containing

carbohydrates and electrolytes. Patients must avoid fats, milk, high fibre foods, caffeine and alcohol. They may consume tea, soups, bananas, rice, toast and flat carbonated beverages.

- ii. A convenient homemade mixture consists of ½ tsp salt, 1 tsp baking soda, 8 tsp sugar , 240 ml orange juice in one litre water (boiled and cooled). Alternatively Oral Rehydration Solution may be used which is freely available in health care facilities.
- iii. Intravenous fluids may be given depending on the severity of the condition, and either Ringer's lactate or Normal saline may be administered.
- iv. In moderately severe non-bloody diarrhea, loperamide, bismuth subsalicylate and probiotics are useful. Loperamide should be avoided if there is fever, blood in stools or other suggestion of inflammation. When used, the dose is 4 mg orally followed by 2 mg with each loose stool and not exceeding 8 mg per day. It is however, suggested that any severe diarrhoea should be admitted or referred to the nearest facility where IV fluid replenishment and other measures can be instituted.
- v. Racecadotril 100 mg thrice a day has also been used for symptomatic relief of troublesome voluminous diarrhoea. It should be tried along with other measures in acute watery diarrhoea.
- vi. In cases with dysentery, empirical antibiotic trial with a Ciprofloxacin 500 mg twice daily for 5 days and Metronidazole 400 mg twice daily may be initiated with regular observation.

**10. Referral** If no symptomatic improvement occurs or if the condition worsens early referral or admission to the nearest health care facility should be considered. Please refer to the alarm symptoms and signs mentioned above.

**11. Key messages:**

- a. Diarrhoea in the elderly may be just a self limited illness causing mild inconvenience

- b. In the frail elderly, it leads to serious complications including hypotension, shock, sepsis, metabolic disturbances and death.
- c. It is important to recognize alarm symptoms and signs and plan early replenishment of fluids, antibiotics and referral for management of complications.

## **DYSPEPSIA, GASEOUSNESS, GASTROESOPHAGEAL REFLUX (GERD)**

1. **Introduction:** These symptoms are common in elderly and may have some overlap and are discussed under a common heading. Dyspepsia may be described by some patients as “indigestion”. It needs to be distinguished from gastro-esophageal reflux or peptic ulcer disease which may have some overlapping symptoms. Gaseousness is also an important complaint in elderly.

### **2. Definition:**

- a. Dyspepsia is a common acute or chronic problem characterized by sometimes vague combination of upper abdominal discomfort, burning, pain, feeling of fullness, early satiety and reflux symptoms.
- b. Gastroesophageal Reflux Disease (GERD): The symptoms consist of return of gastric contents into lower esophagus or mouth with a sour taste and heartburn are suggestive of GERD.
- c. Gaseousness is another common complaint with features of belching, bloating, abdominal fullness and flatulence.

### **3. Pathophysiology :**

- a. **Dyspepsia:** It may have no underlying cause or may be associated with peptic ulcer and GERD. Often it is related to delayed gastric motility and decreased gastric compliance.
- b. **GERD:** The LES and crural diaphragm are a complex sphincter mechanism for preventing reflux. Incompetence of this mechanism is due to: Transient relaxation of LES by gastric distension induced vaso-vagal mechanisms;

hypotensive LES; anatomic distortion of esophagogastric junction usually by hiatus hernia. Factors that exacerbate this are obesity, gluttony, gastritis, esophagitis, delayed gastric emptying. A transient lower esophageal sphincter (LES) relaxation that results in belching is quite normal.

- c. **Gaseousness:** It may be due to excessive gas production, abnormal intestinal transit, or increased visceral sensitivity. Carbohydrate malabsorption (lactose intolerance or starch), high fibre diets or bacterial overgrowth lead to excess gas production. Dysmotility due to diabetes mellitus may result in gastroparesis. Increased visceral sensitivity may have an association with Irritable Bowel Syndrome and functional dyspepsia.

#### 4. **Aetiology:**

##### a. **Dyspepsia**

- i. **Acute dyspepsia** may occur due to eating “heavy” meals, swallowing too quickly without proper chewing or drinking too much alcohol or coffee. Numerous medications may be associated with dyspeptic symptoms, the most important being NSAIDs, Aspirin, Antibiotics, corticosteroids, and iron. Dyspeptic symptoms may also occur with use of tobacco products, as well as consumption of chocolates and mint.
- ii. Chronic dyspepsia: no definite organic cause can be determined in the majority and it is called **functional dyspepsia**. Although it is benign, it is also difficult to treat.
- iii. Dyspeptic symptoms may be associated with peptic ulcer disease or gastro-esophageal reflux disease. *Helicobacter pylori* is an uncommon cause of dyspepsia in the absence of peptic ulcer disease. Dyspeptic symptoms may rarely be indicative of gastric or esophageal cancer. Patients with diabetes mellitus can present with dyspepsia as a result of gastroparesis.

- iv. Obesity, chronic kidney disease, abdominal hernias, intestinal ischemia, giardiasis and coronary artery disease may be accompanied by dyspeptic symptoms.
  - v. Pancreatic cancer, chronic pancreatitis, cholelithiasis or choledocholithiasis may also need to be differentiated from dyspepsia. The severity of pain, radiation and accompanying symptoms and signs may help to make the differentiation.
- b. **Gastroesophageal reflux** is characterized by heartburn exacerbated by meals, bending or lying down. The distension of the stomach results in transient lower esophageal sphincter relaxation. Sometimes, the LES is incompetent and results in more severe symptoms.
- i. Hiatus hernia may lead to non-erosive GERD or erosive esophagitis and sometimes Barrett's esophagus.
  - ii. Obesity may contribute to GERD.
  - iii. The refluxed secretions whether acid, bile or alkaline pancreatic secretions may all cause mucosal damage. However, if cleared rapidly, by the peristaltic movements or neutralized by salivary bicarbonate the damage may be mitigated. When these protective mechanisms are lost, due to anti-cholinergic medications or loss of salivary secretions due to Sjogren's or radiation induced loss of salivary secretions, damage may occur. Gastroparesis may also exacerbate GERD.
- c. **Bloating or gaseousness** can occur due to air swallowing which occurs if food is gulped, or by dietary indiscretion due to excess fat intake and carbohydrate mal-digestion or high fibre diets. Some food and beverages that can cause bloating are beans, peas, lentils, broccoli, cauliflower, cabbage, onions, coffee, carbonated drinks and beer.

## 5. Clinical features

- a. **Dyspepsia** is a common condition and usually describes a group of non-specific symptoms rather than one predominant symptom. These symptoms include: Abdominal pain, discomfort or burning, bloating, feeling uncomfortably full after eating, nausea or loss of appetite. History should include recent medications, excessive alcohol or coffee consumption. It should also identify recent stressful events or depression. The physical examination may be non-contributory but should be conducted to identify organic disorders.
- b. **GERD** symptoms are mainly heartburn that occurs 30-60 minutes after food and on lying down. Patients may complain of regurgitation i.e. spontaneous reflux of sour or bitter gastric contents into the mouth. Some patients may develop dysphagia due to erosive esophagitis or stricture. Accompanying symptoms include chronic cough, asthma, laryngitis, sore throat and chest pain. Coronary artery disease should be ruled out in elderly who may have atypical symptoms.
- c. Patients with epigastric pain are often described as having “**ulcer-like dyspepsia**” while those with heartburn have “**reflux like dyspepsia**”.
- d. **Key Questions** for dyspepsia, GERD and Gaseousness:
  - i. Is the discomfort an abdominal pain, fullness or burning?
  - ii. For how long has it been present?
  - iii. Where is the discomfort located? Does it radiate?
  - iv. Is there nausea or vomiting?
  - v. What is the relation to food, any particular kind of food or medication?
  - vi. How does it increase? What factors alleviate the discomfort?
  - vii. Does use of antacids relieve the symptom?
  - viii. Is there a feeling of bloating? Does wind move up or down?
  - ix. Is there vomiting or diarrhoea?

- x. Is there excessive salivation or filling of mouth with sour or tasteless fluids?
- xi. Does food (solid or liquid) stick in the throat? Is it mainly to solids or to both solids and liquids? Is it transient or increasing?
- xii. Is there weight change? Is there a change in appetite?

e. **Alarm symptoms** and signs that would indicate a serious disorder needing further investigation include:

- i. New onset dyspepsia
- ii. Odynophagia
- iii. Significant dysphagia
- iv. Weight loss
- v. Anemia
- vi. Persistent vomiting, severe or persistent pain
- vii. Hematemesis, malena
- viii. Palpable abdominal masses or supra-clavicular lymph nodes.
- ix. Symptoms do not get relieved by 4-8 weeks of empirical treatment.

6. **Diagnosis:** A general principle is to perform only limited and directed diagnostic testing of selected individuals. The signs and symptoms indicative of a serious disorder would require upper gastrointestinal endoscopy, abdominal X-Ray and ultrasound. Once serious disorders are excluded patients are treated empirically. If a patient has severe dysphagia, a barium swallow may be indicated. Indications for esophageal manometry and pH measurement are best decided by a gastroenterologist. Upper GI Endoscopy may be indicated in obese white men over 50 years, with a history of smoking or a family history of GI malignancy and in females with multiple of these risk factors. These decisions are best left to the gastroenterologist.

7. **Complications:** Patients with chronic reflux symptoms may develop

- a. Chronic esophagitis

- b. Bleeding
- c. Stricture
- d. Barretts' metaplasia: esophageal mucosa changes from squamous to columnar epithelium.
- e. Adenocarcinoma

## **8. Treatment:**

- a. General Principles: Treatment for mild indigestion includes reassurance, dietary advice on foods to avoid (spicy or oily foods) or to eat food in an unhurried manner. Taking small frequent meals may be useful in some cases. Acidic foods should be removed from the diet (citrus, tomatoes, spices). Items that precipitate reflux can be avoided (fatty foods, chocolates, peppermint, alcohol and smoking cigarettes). Obese patients may be encouraged to lose weight. Patients should avoid lying down for 3 hours after meals and should raise the head end of the bed by six inches at night to prevent reflux.
- b. Mild reflux symptoms can be relieved by antacids for symptomatic relief and H-2 receptor antagonists (Ranitidine). The usual dose of ranitidine is 150 mg orally twice daily taken 30 minutes before meals.
- c. When GERD or dyspeptic symptoms are troublesome, a trial of proton pump inhibitors should be given for 4 weeks especially in those who have "ulcer like dyspepsia" or "reflux like dyspepsia". The usual agents are given in once daily doses taken 30 minutes before meals and include: Pantoprazole 40 mg, Omeprazole 20 mg or Rabeprazole 20 mg. In situations where relief is inadequate, twice daily dosing of the above agents can be tried. Once relief of symptoms occurs, the PPI can be withdrawn after 8-12 weeks and used as "on demand" or intermittently for short courses.
- d. For disease that is unresponsive to this therapy, after adequate duration i.e. 8 weeks, the patient should be referred to a gastroenterologist for evaluation and Upper GI endoscopy.

- e. Other agents : Alginate is a polymer that can be used to reduce post-prandial reflux episodes. In some cases a trial of amitriptyline in dosage of 10-25 mg per day has been found useful by moderating the visceral afferents. This drug may not be well tolerated by elderly. Escitalopram has also been found useful in some cases. Some herbal treatment may also help e.g. peppermint or caraway ( kala jeera).
- f. Patients with resistant reflux disease may benefit by Nissen fundoplication which can be performed laparoscopically.

9. **Referral:** This is required if there are alarm symptoms or failure of relief after 8 weeks of empirical treatment.

#### 11. **Key messages :**

- a. Indigestion or dyspepsia is a common problem in elderly
- b. It is usually benign but serious gastrointestinal disorders should be considered.
- c. Upper GI endoscopy may be helpful in cases with alarm symptoms or signs
- d. Basic treatment is by dietary modification and acid suppression by proton pump inhibitors or H-2 blockers and in some cases treatment of H Pylori infection.

## **ANOREXIA**

1. **Introduction:** One of the common symptoms encountered by the clinician is the occurrence of loss of appetite or anorexia in the elderly. It is disturbing for the relatives who often try forcing food into the mouth of the reluctant elderly patient.

2. **Learning objectives:** At the end of this module the trainee should be able to:
- a. Provide an investigative plan

**3. Definition:** Anorexia of aging is loss of appetite or decreased food intake in late life.

**4. Pathophysiology:** Elderly have a variety of physiological changes, co-morbid disorders, and medications, socioeconomic and psychological conditions that influence appetite or desire for food intake. This is controlled by a complex process which works in favour of ensuring that the feeding drive is unimpaired. It is modified by aging at multiple levels resulting in anorexia of aging. In brief, appetite is influenced by many factors integrated in the hypothalamus including neural, hormonal and metabolic. Vagal inputs include gut distension; hormonal signals include leptin, insulin, cortisol and gut peptides (ghrelin, cholecystokinin and peptide YY), metabolic signals include glucose. Chronic low-grade inflammation in elderly may exacerbate the symptoms. Also important are psychological and cultural factors. The sense of smell and taste decrease at different rates with age and may make food unpalatable.

**5. Aetiology:**

- a. In an acute form, anorexia may be due to viral hepatitis, recent drug intake, gastritis, or anxiety and stress. A variety of medicines especially polypharmacy contribute to anorexia.
- b. Longer duration or persistent anorexia may occur in depression, malignancy, tuberculosis, anemia, hypothyroidism, apathetic hyperthyroidism or psychogenic conditions.
- c. Monotonous foods, difficulty in chewing, ill-fitting dentures, smoking may contribute to anorexia.
- d. An inability to buy, cook and eat food due to functional impairment as well as social isolation may influence food intake even though there is no loss of desire to eat.
- e. A variety of chronic medical disorders may result in anorexia i.e. heart failure, chronic obstructive pulmonary disease, chronic kidney disease, liver failure.

## 6. Clinical Features:

**a. General:** As anorexia is not a disorder but a symptom, the focus must be on evaluation of the cause through a thorough history and clinical examination. The questions given below may help in assessment of the aetiology.

### **b. Key questions:**

- i. For how long have you had loss of appetite?
- ii. Do you have any change in your sense of smell or taste?
- iii. Does the presence of food make you nauseous?
- iv. Is there soreness in the mouth?
- v. Does eating food cause abdominal pain?
- vi. Have you lost weight?
- vii. Are you unhappy? Has there been a recent stressful event?
- viii. Any bereavement? Any recent hospitalization?
- ix. Has there been any change in your environment?
- x. Are you able to buy and cook your food?
- xi. Do you eat food with the family or alone?
- xii. Do you think you need help for cooking food?
- xiii. Are you having normal dentition? If not, do you use dentures? If yes, are the dentures fitting well?

### **c. Alarm symptoms and signs :**

- i. Weight loss > 5 % in one month and 10% in 6 months
- ii. Malnutrition
- iii. Vitamin deficiencies
- iv. Sarcopenia
- v. Memory disturbance
- vi. Falls

**7. Diagnosis:** A comprehensive geriatric assessment, complete dietary history (diet recall), a Mini-Nutritional Assessment (tailored to the community), the socio-economic and family history should identify risk factors for anorexia. The diagnosis is made by a careful clinical examination for evidence of vitamin and

protein deficiency. The BMI should be estimated. The Haemogram will identify anemia, and an elevated ESR will indicate a chronic disorder. The serum Vitamin D and B12 levels, renal and liver function tests should be done to identify deficiencies and chronic illnesses. The Serum protein levels and serum albumin will be important indicators of protein deficiency. A search for chronic illness should include chest radiograph and ultrasound abdomen. A patient may need evaluation for malignancy.

**8. Complications:** The complications include:

- a. Malnutrition which may be quantitative (Protein-energy malnutrition) or qualitative (protein or vitamin deficiency)
- b. Frailty
- c. Sarcopenia
- d. Osteopenia and osteoporosis
- e. Mortality: unintentional weight loss is a powerful risk

**9. Treatment:**

a. **General Measures:**

- i. Identification of risk: A review of the socio-economic, environmental, family, Activities of Daily Living (ADL), Depression will help pinpoint the risk for developing anorexia.
- ii. Diet may need to be modified to make food more palatable and assistance should be provided wherever it is needed.
- iii. Identify social isolation and take measures for preventing it or providing a congenial eating environment.
- iv. Evaluate for medications that may contribute to anorexia: Digoxin, spironolactone, lithium, amitriptyline, fluoxetine, NSAIDS, laxatives and theophylline.
- v. Identify the need for dentures.

b. Specific treatment:

- i. No specific treatment is clearly effective in anorexia.

- ii. Nutritional supplements, vitamins and high protein diet only overcome the consequences of decreased food intake.
- iii. Appetite stimulants have not been effective in clinical practice:
  - a. Anabolic steroids have helped in some settings but have Cardiovascular and hepatic side effects.
  - b. Metoclopramide controls early satiety but long-term use has negative extrapyramidal effects.
  - c. Appetite stimulating medications like Megestrol, tetrahydrocannabinol, cyproheptadine have numerous side effects including delirium.

#### **10. Referral indications:**

- a. Patients who do not respond to simple interventions
- b. Patients with suspicion of malignancy or anemia
- c. Patients with chronic illnesses

#### **11. Key messages**

- a. Anorexia has an adverse impact on quality of life of elderly
- b. It may respond to simple interventions at home
- c. It may lead to malnutrition, morbidity and mortality.
- d. It may be an indicator of underlying depression, chronic illness or malignancy.

#### **A. Brief discussion on other topics:**

**1. Persistent and Chronic Diarrhea:** Diarrhea of 2-4 weeks duration is persistent diarrhoea. It is usually due to Giardia , Entamoeba histolytica or Clostridium difficile. Other organisms may also cause this form of illness. It needs investigation including stool examination and evaluation by colonoscopy or upper gastrointestinal endoscopy, duodenal biopsy as well as duodenal aspirates. A diarrhoea lasting for more than 4 weeks is called chronic diarrhea. In this form of diarrhea medications, chronic infections and

irritable bowel syndrome must be considered before extensive workup at a referral health care facility.

- 2. Irritable bowel syndrome (IBS)** is a common functional disorder of the gastrointestinal tract whose pathophysiology is multifactorial and includes a mix of altered bowel motility, epithelial permeability, neurotransmitter imbalance, intramucosal immune activation, infection, visceral hypersensitivity, central nervous system, psychosocial and genetic factors. It consists of recurrent abdominal pain, or discomfort in the last 6 months, with episodes occurring over 3 days per month in the last 3 months. The pain or discomfort is associated with 2 or more of the following: Symptoms that improve with defecation; onset is associated with change in stool frequency or form (appearance) of the stool. IBS may be associated with diarrhoea, constipation, mixed bowel habits or is not definable into any predominant category. The red flags or alarm symptoms that need to be identified and needing further workup include : blood in stool, anemia, anorexia, weight loss, fever, nocturnal symptoms awakening patient, inflammatory bowel disease, coeliac disease, family history of colon cancer, and major change in symptoms. As the symptoms of IBS are troublesome and recurrent, the clinician must develop a durable physician-patient relationship with a patient-centred approach. Diets lows in FODMAPS (a variety of fruits: Apple, mango, Pears, Watermelon; vegetables: beetroot, garlic, onion, peas; Grains and legumes: wheat, rye, barley, legumes, chickpeas; Milk and related products: Yoghurt, ice-cream, custard, soft cheese; honey and high-fructose corn syrup) have been found useful but may not be practical in all situations. A variety of agents are available but it would be preferable to take a consultation with a gastroenterologist.

**Case scenario 1.** Mr. Raj is a 75 year old widower; he has osteoarthritis of the knee and is on occasional NSAID's and Paracetamol. He comes to your clinic complaining of a feeling of fullness and discomfort amounting to moderate troublesome pain in the upper abdomen. He says that he feels uneasy and the symptoms are more at night when he is sleeping. He complains of difficulty in passing stools for the last few days

and describes them as somewhat harder than usual needing considerable straining. He does not have any significant weight loss.

**Case Scenario 2.** Mrs. Lata, 72 years of age is a diabetic with heart failure. She is on tablet Metformin 1000 mg twice daily, Tablet Acetylsalicylic acid 75 mg once daily, Capsule Isosorbide mononitrate 30 mg once daily, Tablet Metoprolol 25 mg twice daily and tablet Spironolactone 50 mg once daily. She comes to you with complaints of retrosternal burning which is quite troublesome. The symptoms are more at night or after meals. There is also exertional dyspnoea on climbing two flights of stairs.

**Case Scenario 3.** Mr. Madhu 70 year of age is a businessman running a successful cloth business. He lost his wife 5 years ago and is living in a joint family with his two sons and their family. He has history of coronary artery disease since 10 years for which he is on medical treatment. Since the last 6 months he is complaining of abdominal pain off and on, difficult defecation, sometimes feels incomplete evacuation of stools and of occasionally having to take recourse to enema for satisfactory passage of stools. He has not noticed any blood in stool. How will you manage this patient?

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