GI Motility Disorders in Elderly

Tapas Das

With increasing age, there is functional impairment of the gastrointestinal tract which is also aggravated by the various co-morbidities and adverse effect of many medications. On the whole, there is reduced or impaired co-ordination of contraction of the muscular wall of the various parts of the gastrointestinal tract, leading to various types of mobility problems. The dramatic increase in life expectancy over the last 10 - 15 years demands that clinicians be aware of all these problems.

Fig. 1 depicts the various age-related changes in the gastrointestinal tract.

A practical approach to gastrointestinal motility disorders in the elderly is highlighted below.

**DYSPHAGIA IN THE ELDERLY**

Dysphagia is a common complaint, especially among older adults. There are two types of dysphagia.

---

**Fig. 1: Age-related physiologic changes (Ref. Firth and Prather, 2002)**
A. Oropharyngeal dysphagia
It is due to impaired transfer of food from mouth to esophagus. It has been noted to occur in around 50% of nursing home residents, resulting in a high frequency of aspiration pneumonia.

B. Esophageal dysphagia
It is due to impaired transfer of food through the esophagus into the stomach. In the elderly, it is often referred to as “presbyesophagus” and occurring in about 10% of individuals over the age of 50.

Aetiology
A. Oropharyngeal dysphagia
It is due to sensory deficits in oropharyngeal functioning and decreased Upper Esophageal Sphincter (UES) pressure. The common causes of Oropharyngeal dysphagia are given in Table I.

B. Esophageal dysphagia
Many cases are due to subtle alterations in esophageal function, namely diminished peristaltic amplitude and deficiencies in the ability to generate secondary peristaltic contractions. The common causes of Esophageal dysphagia are given in Table II.

Presentation of dysphagia in the elderly
A systematic clinical approach can lead to accurate diagnosis in 80-85% of patients.

A. Clinical features of oropharyngeal dysphagia
1) Symptoms are food sticking in the throat, difficulty in initiating a swallow, nasal regurgitation, coughing or choking during swallowing.
2) Signs of primary disease (ENT and neurological problems) may be present. Risk of developing aspiration pneumonia is high.

B. Clinical features of esophageal dysphagia
1) Symptoms of food or liquid sticking in the chest, or chest pain.
   In motility disorders, there is difficulty in swallowing both solids and liquids whereas in mechanical obstruction there is difficulty with solids initially.
2) Signs of primary disease or aspiration may be there.

Diagnosis of dysphagia
A. Oropharyngeal dysphagia
   - ENT opinion and direct laryngoscopy
   - X-Ray of cervical spine for cervical spondylosis
   - C.T. scan of head and neck for suspected tumor.
   - Barium X-ray of the pharynx and UES with videofluoroscopy

Table I. Causes of Oropharyngeal dysphagia

1. Neurological diseases
   CVA or Stroke (28-65%), Parkinson’s Disease (75%)
   Alzheimer’s Disease (71%)
   Others include brain stem tumors, multiple sclerosis, amyotrophic lateral sclerosis, myasthenia gravis, polymyositis and dermatomyositis, cricopharyngeal dysfunction, etc.

2. Local structural lesions
   Cervical osteophytes, Zenker’s diverticulum
   Oropharyngeal tumours.
   Others like web, abscess, goiter etc.

Table II. Causes of Esophageal dysphagia

1. Gastro - Esophageal Reflux Disease (GERD)
2. Motility disorders
   Diabetes Mellitus
   Achalasia
   Spastic esophageal motor disorder
   Parkinson’s Disease
   Scleroderma
3. Mechanical obstruction
   a. Intrinsic
      Esophageal cancer
      Peptic stricture
      Rings and webs
      Foreign body and dentures
      Diverticula
   b. Extrinsic
      Mediastinal Pathology like lymphadenopathy, aortic aneurysm (dysphagia aortica).
4. Medication
   a. Esophageal injury
      Non-steroidal Anti-inflammatory Drugs (NSAIDS), Potassium chloride, Ferrous sulphate, Tetracycline, Bisphosphonates, Quinidine etc.
   b. Lowering Lower Esophageal Sphincter (LES) pressure
      Anticholinergics, Antihistamines, Calcium channel blockers etc.
5. Infections of the esophagus
   Candida albicans
   Herpes simplex
and rapid sequence pictures by videoradiography.
- Transnasal fiberoptic endoscopic examination of swallowing (FEES) along with sensory testing.
- Manometry to assess pharyngeal strength and UES function.

**B. Esophageal dysphagia**
- Chest X-ray
  Any chest pathology can be seen. In advanced achalasia, a dilated esophagus with air-fluid level is visualized.
- CECT chest with or without FNAC may help
- Ba-meal studies with videofluoroscopy
  In achalasia, there is dilated esophagus with a smooth "bird-beak" narrowing at the G.E. junction. "Sigmoid esophagus" is seen in the elderly with long standing achalasia.
  In scleroderma, there is mild esophageal dilatation, distal aperistalsis and patent LES. Esophageal carcinoma may show ragged, mucosal ulcers and "rat-tail" deformity.
  Spastic esophageal motor disorders like diffuse esophageal spasm and nutcracker esophagus can be diagnosed.
- Upper G.I. Endoscopy
  This can visualize many of the lesions and histopathological examination and brush cytology can be carried out from suspicious sites.
  In Pill-induced dysphagia due to medications, pin-point to large ulcers can be identified.
  In esophageal infections, endoscopic mucosal biopsy with culture, and brush cytology can be undertaken.
- Esophageal manometry
  It is helpful in spastic esophageal motor disorders.
  In scleroderma, there is low to absent LES pressure, weak to absent distal esophageal peristalsis and normal upper esophagus.
- Endoscopic ultrasound
  It helps to stage esophageal carcinoma and is also useful in achalasia.
  Positron emission tomography scanning to assess spread in esophageal carcinoma.

The evaluation of dysphagia in the elderly is depicted in Fig. 2.

![Diagram of Dysphagia]

---

**Fig.2: Evaluation of dysphagia in the elderly (Ref: Hila and Castell, 2003)**
A. Oropharyngeal dysphagia

- Neurological diseases respond to rehabilitation in some cases.
- Neoplasms can be managed with specific therapy.
- Cricopharyngeal myotomy can be done in cricopharyngeal dysfunction, Zenker's diverticulum etc.
- Injection of botulinum toxin may also be used for cricopharyngeal dysfunction.
- A gastrostomy or jejunostomy tube may be needed where oral feeding is impossible without aspiration.
- Elderly patients may be taught safe swallowing techniques.

B. Esophageal dysphagia

- This also depends on the cause

  a. Achalasia

     Measures are
     - Smooth muscle relaxing agents like isosorbide dinitrate or nifedipine given before meals. Sildenafil can also be used.
     - Balloon dilatation
     - Laparoscopic Heller's myotomy is successful in 90% of patients.
     - Botulinum toxin injection for temporary relief in elderly patients who cannot tolerate more aggressive therapy.

  b. Spastic esophageal motor disorders

     Measures are
     - Reassurance
     - Drugs like nitrates, calcium channel blockers like nifedipine or diltiazem, anticholinergics, antidepressants and anxiolytics have all been used.
     - Other measures are pneumatic dilatation, extended Heller myotomy and injection of botulinum toxin.

  c. Scleroderma

     a. In patients without stricture, treatment is directed at chewing food well, drinking plenty of fluids and taking care of GERD.
     b. In case of stricture, dilatation.

  d. Esophageal cancer

     a. Without major co-morbidity, surgical resection.
     b. In unresectable tumor, radiotherapy and/or chemotherapy can be done.
     c. For focal adenocarcinoma in Barret's esophagus, endoscopic mucosal resection can be done.
     d. Symptomatic treatment includes dilatation, laser ablation and stents.

GASTROESOPHAGEAL REFLUX DISEASE (GERD) IN ELDERLY

GERD is defined by symptoms and/or histopathological alterations (esophagitis) caused by reflux of gastric contents into the esophagus. It is a chronic disorder. Its prevalence increases with age and is around 20% in the elderly 6.

Pathogenesis of GERD in the elderly

The elderly subjects have a higher prevalence of risk factors that pre-dispose them to GERD 7.

1) Difficulty in maintaining an upright position after meals.
2) Hiatus hernia associated with both repeated episodes of acid reflux and Barret’s esophagus.
3) Increased drug use that damages the esophageal mucosa or reduces LES pressure (8). (Table III)
4) Delayed esophageal transit time of many drugs.
5) Secondary esophageal peristalsis, which clears refluxed acid, is less effective in the elderly.

Table III. Drugs that may increase the risk of severe GERD

<table>
<thead>
<tr>
<th>Direct effect on esophageal mucosa</th>
<th>Reduction in LES pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>Theophylline</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>Nitroderivatives</td>
</tr>
<tr>
<td>Potassium salts</td>
<td>Calcium channel blocker</td>
</tr>
<tr>
<td>Ferrous sulphate</td>
<td>Benzodiazepines</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Dopaminergies</td>
</tr>
<tr>
<td>Alendronate</td>
<td>Tricyclic antidepressants</td>
</tr>
<tr>
<td></td>
<td>Anticholinergics</td>
</tr>
</tbody>
</table>
6) Decreased salivary bicarbonate secretion in the elderly also contributes to GERD.

Presentation of GERD in elderly

Typical and atypical presenting symptoms of GERD are depicted below in Table IV.

Typical symptoms are rare in the elderly. Atypical symptoms and non-specific symptoms like vomiting, anorexia, weight loss and anemia are significantly increased with aging. Elderly patients have a higher prevalence of severe esophagitis and this can cause Upper G.I bleeding. Relapse occurs commonly in the elderly and this may be sub-clinical.

Table IV. Symptoms of GERD

<table>
<thead>
<tr>
<th>Typical symptoms</th>
<th>Atypical Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substernal burning (“heart burn”)</td>
<td>Pulmonary symptom</td>
</tr>
<tr>
<td>Belching</td>
<td>Asthma</td>
</tr>
<tr>
<td>Regurgitation (“acid taste”)</td>
<td>Chronic cough</td>
</tr>
<tr>
<td>Worse after meals</td>
<td>ENT symptoms</td>
</tr>
<tr>
<td>Worsened by laying down</td>
<td>Hoarseness</td>
</tr>
<tr>
<td>Relieved by antacids</td>
<td>Non-cardiac chest pain</td>
</tr>
<tr>
<td>Epigastric pain</td>
<td>Dental erosions</td>
</tr>
</tbody>
</table>

Barret’s esophagus is commoner in the elderly and predisposes to adenocarcinoma of the distal esophagus. Diagnosis of GERD in the elderly

Warning symptoms in a case of GERD are dysphagia, odynophagia, weight loss and bleeding.

Diagnostic tests in a suspected case of GERD are:

1) ECG to rule out any cardiac cause of chest pain.
2) Upper G.I. Endoscopy should be done early to detect esophagitis, if any, and to grade its severity (according to the Los Angeles Classification) from Grade A to Grade D, depending on the number of mucosal breaks and their length and extent. Endoscopy will also detect any stricture, Barret’s esophagus and peptic ulcer. Mucosal biopsy may be taken in Barret’s esophagus and dysplastic changes, if any, can be noted.
3) Barium swallow of esophagus with videofluoroscopy is useful in detecting hiatus hernia, peptic stricture, or any structural abnormality like rings or webs.
4) Esophageal 24 - hour pH monitoring
   A pH probe is placed 5 cm above the LES and it measures the acid reflux over 24 hours. Patients are ambulatory and they also note the time whenever they experience reflux symptoms.

5) Esophageal manometry.
   It detects any anomaly of the LES pressure or esophageal motility.
6) Bernstein test.
   Blind prefusion of saline and then acid into the esophagus can tell whether there is acid reflux.

Treatment of GERD in the elderly

The goal of treatment of GERD in elderly is to treat symptoms, heal esophagitis, manage complications and maintain remission.

(A) Medical therapy

- **Lifestyle modification (6)**

  Patients should be instructed to eat three meals per day with the evening meal taken at least 3 hours before bedtime. The head end of the bed may be elevated by 6 inches. Diet should be low in fat. The avoidance of smoking, excessive alcohol, chocolates, coffee and carminatives is of doubtful benefit. Drugs that decrease LES pressure and promote gastroesophageal reflux must not be taken.

- **Short - term treatment**

  Antacids may be effective for symptomatic control of heartburn but they should be used with caution in the elderly patients because of their side effects. Alginic acid is also useful.

  Anti - reflux therapy is focused largely on suppressing gastric acid secretion with H2RB and PPIs. Studies have demonstrated that PPI’s are more effective than H2RB and are well tolerated with excellent compliance. More recently, a multi - centered study reported excellent healing rates of esophagitis after a two month treatment with pantoprazole 40 mg once daily in 164 elderly patients. Pro-kinetic agents like metoclopramide, levosulpiride, cinitaipride, mosapride etc. will increase LES pressure and promote gastric motility. Unfortunately, no controlled clinical trials have evaluated the role of these drugs in the treatment of GERD in the elderly. Metoclopramide can cause serious extrapiramidal (EP) side-effects and drowsiness in the elderly.

- **Long - term treatment**

  GERD is a chronic relapsing condition with a 70% to 90% annual relapse rate after stoppage of antisecretory therapy. In the elderly population, the most effective measure for minimizing the occurrence of relapse is a maintenance therapy with anti-secretory drugs. Significant risk factors for relapse of esophagitis are the
presence of symptoms, the presence of hiatus hernia and high-grade esophagitis at baseline. Recently, a double-blind, placebo-controlled study was carried out in elderly patients with esophagitis. After 12 months of treatment with pantoprazole 20mg once daily, the healing rate of esophagitis was 95% in the treatment group versus 33% in the placebo group, respectively. There was a significant improvement in the mental depression score also. Long-term antisecretory treatment may be complicated by infections of the lower GI tract, malabsorption and drug interactions.

(B) Surgical Therapy
Indications of surgical therapy for GERD in the elderly patient are intractable strictures, severe bleeding esophagitis, esophageal dysplastic changes and severe extraesophageal pulmonary manifestations not responding medically. Laparoscopic Nissen fundoplication is commonly done. Surgery initially improves symptoms in more than 90% of patients, but the effects deteriorate with time. Endoscopic antireflux treatments are currently undergoing trial.

DYSPEPSIA IN ELDERLY
Dyspepsia is a form of “Indigestion” in which the subject believes that his symptoms are originating in the gastroduodenal region.

Causes of Dyspepsia

(A) Functional Dyspepsia (60%)
It is defined as a “variable combination of chronic or recurrent gastrointestinal symptoms not explained by structural or biochemical abnormalities”12. It is also known as “nonulcer” dyspepsia and is often difficult to diagnose in the elderly patient because the causes are varied and the symptoms may be related to co-morbid illness or side effects of medication.

(B) Organic causes (40%)
- Gastric and duodenal ulcer
- Atypical GERD
- Gastric cancer

Symptomatology of dyspepsia
Symptomatology of dyspepsia are given in Table V.

Motility disorders associated with Functional Dyspepsia are:
- Non-erosive or atypical GERD
- Gastroparesis
- Small intestine dysmotility

Table V. Symptomatology of dyspepsia

<table>
<thead>
<tr>
<th>Symptomatology of dyspepsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epigastric burning</td>
</tr>
<tr>
<td>Pain or gnawing discomfort</td>
</tr>
<tr>
<td>Anorexia</td>
</tr>
<tr>
<td>Nausea</td>
</tr>
<tr>
<td>Early satiety</td>
</tr>
<tr>
<td>Bloating</td>
</tr>
<tr>
<td>Eructation or belching</td>
</tr>
<tr>
<td>Weight loss</td>
</tr>
</tbody>
</table>

GASTROPARESIS
This is the most common upper GI motility disorder in the elderly. It is an important cause of “Delayed gastric emptying”.

Causes of Gastroparesis
The causes of Gastroparesis are given in Table VI.

Table VI. Causes of Gastroparesis

1. Acute:
- Drugs like anticholinergics (eg. tricyclic antidepressants), codeine, calcium-channel blockers, etc.
- Viral infections like acute gastroenteritis.
- Metabolic disturbances like dyselectrolytaemia, hyperglycemia.
- Critical illnesses.

2. Chronic:
- Motor disorders
  GERD, achalasia cardia, etc.
- Endocrine and metabolic causes
  Diabetes Mellitus, Chronic liver or renal failure, hypothyroidism etc.
- Neurological diseases
  Head injury, CVA, Brain tumors, Parkinson’s Disease etc.
- Post surgery
  Vagotomy or partial gastrectomy long back; Following “Roux-en-y” anastomosis.
- Collagen vascular disease
  Seleroderma, Systemic Lupus Erythematosus.
- Miscellaneous causes
  Idiopathic (elderly women), Paraneoplastic condition, Infections like H.I.V. Irradiation etc.
Presentation of gastroparesis
1) Symptoms of dyspepsia
2) Signs of underlying lesion.
   Epigastric distention or tenderness along with “succussion splash” may be present.

Diagnosis of Gastroparesis in elderly
There should be a more aggressive approach than in the younger patient to exclude the organic diseases like carcinoma.
1) To look for any associated systemic disease
   i) Relevant laboratory examination
   ii) Chest x-ray
   iii) Plain x-ray of the abdomen
2) To look for gastric stasis, mucosal disease or mechanical obstruction:
   i) Barium meal examination of upper GI tract
   ii) Upper GI Endoscopy
   iii) Gastric emptying scintigraphy using solids and liquids.
   iv) Gastroduodenal Manometry.

It is needed when no organic cause can be identified and differentiates a neuropathic (eg. diabetes mellitus) from a myopathic (eg. scleroderma) process.

Treatment of gastroparesis in elderly
A. Acute
Fluids, electrolytes and nutrients should be given by intravenous route in severe cases; in milder cases, they can be given orally or by a jejunal feeding tube.

B. Chronic
1) Reassurance, psychotherapy, physical exercise
2) Treatment of the cause.
3) Frequent small meals
4) Nutritional supplementation.
5) Drugs
   Prokinetics, oral or parenteral, with caution as Metoclopramide can lead to EPS side effects
   Antiemetics, if needed
   Intravenous erythromycin has also been used for short period.
6) Endoscopic procedures
   Nasojejunal tube
   Feeding gastrostomy
   Feeding jejunostomy
7) Surgery
   Gastrectomy for severe gastroparesis
   Gastric Pacing

SMALL INTESTINAL BACTERIAL OVERGROWTH SYNDROME (SIBO)
Prolongation of the intestinal transit time in the elderly population predisposes to SIBO. The reduced propagation velocity may reflect the combined effect of age-related alteration in neurons, receptors and cell messengers of the enteric nervous system.

Aetiology of SIBO
1) Diabetes
2) Scleroderma
3) Structural lesions like strictures, adhesions, diverticula and areas of bypass.
4) Decreased gastric acidity due to gastritis, surgery or drugs like PPI.

Presentation
1) Symptoms
   May be subtle and non-specific.
   Fatigue, nausea, vomiting, small bowel diarrhoea, weight loss, bone pain, arthritis or arthralgia, muscular weakness and dyspnoea on exertion may be seen.
2) Signs
   Features of malabsorption may be present: cheilosis, glossitis, ecchymoses, oedema.

Diagnosis
1) Direct culture of small bowel contents
   It is obtained by aspiration of small intestine during upper G.I. Endoscopy. If quantitative culture detects the presence of greater than 100,000 colony-forming units, it indicates bacterial overgrowth. However, bacterial overgrowth distal to the catheter may be missed.
2) Hydrogen breath test
   This is a non-invasive test in which glucose or lactulose is taken orally and the hydrogen level in the exhaled breath is measured. The test is then repeated after a course of antibiotics.
3) Schilling Test with tetracycline

Treatment of SIBO
1) Diet
   Should be high in fat and low in carbohydrate.
2) Prokinetic agents
   Metoclopramide, levosulpiride and cinitapride may be beneficial.
3) Antibiotics
Quinolones, tetracycline, trimethoprim - sulphamethoxazole and other agents like rifaximin or metronidazole are effective if given over a 1 - 4 week course.14

4) Probiotics
Saccharomyces boulardii or Lactobacillus fermentum are of doubtful benefit in SIBO of the elderly.

5) Endoscopy or Surgery
Endoscopy may be carried out for dilatation of strictures and structural abnormalities may be corrected by surgery.

CONSTIPATION IN THE ELDERLY
Constipation is a common problem in elderly people and it is reported by 26 - 34% in women and 16-30% in men over the age of 65 years.15 Usually, it is a chronic problem but it can also present acutely.

Definitions of constipation

A) Self - reported constipation
The patient complains of constipation

B) Functional Constipation (Rome II criteria)
Two or more of the following symptoms present on more than 25% of occasions, for at least 12 weeks in the last 12 months:

- Two or less bowel movements per weeks.
- Straining at stool
- Hard stool
- Feeling of incomplete evacuation.

C) Rectal Outlet Delay (Rome II criteria)
Feeling of anal blockage at least a quarter of the time and prolonged defaecation (> 10 min to complete bowel movement); or need for self - digitation (pressing in or around the anus to aid defaecation) on any occasion.

D) Clinical Constipation
Large amount of feces (hard or soft) in rectum on digital examination and/or colonic fecal loading on abdominal radiograph.

Aetiopathology of constipation in the elderly

A) Self-reported constipation
Anxiety and/or depression along with misconceptions about normal bowel habit.

B) Functional Constipation
1) Age-related colonic dysfunction
   i) Myenteric plexus dysfunction in the colon often aggravated by laxative abuse.
   ii) Reduced inhibitory nerve input to the circular smooth muscle leading to segmental motor incoordination.
   iii) Increased collagen deposit in colon.
   iv) Raised plasma ß-endorphin concentration with increased binding to opiate receptors and myenteric plexus of gut wall leading to relaxation of colonic tone and reduced gut motility.

2) Prolonged colonic transit time
   i) Immobility due to neurological conditions like diabetic neuropathy, Parkinson’s Disease, Stroke, Spinal cord disease and autonomic neuropathy.
   ii) Drugs like anti-cholinergic agents, tricyclic anti-depressants, calcium channel blockers, opiates, iron, calcium supplements and NSAIDS.
   iii) Endocrine and metabolic problems like hypothyroidism, hypercalcemia and hypokalemia.
   iv) Dietary factors like low dietary fibre.

C) Rectal outlet delay
i) Age-related decline in the strength of external anal sphincter, pelvic and abdominal musculature, particularly in elderly women.

ii) Sacral cord disease leading to reduced rectal mobility so that the urge to pass stool is blunted, a condition known as ‘Rectal Dyschezia’. A similar condition also occurs in patients with dementia, depression, immobility, painful anorectal conditions (like haemorrhoids, fissures, rectocele) and if there is lack of privacy or comfort.

iii) In some elderly patients and those with Parkinson’s Disease, there is paradoxical contraction of pelvic floor muscles and external sphincter, a condition known as “Pelvic dyssynergia”.

iv) Some types of constipation - predominant Irritable Bowel Syndrome.

v) Colorectal cancer.

PRESENTATION OF CONSTIPATION IN ELDERLY

History
A good history is very important to evaluate constipation in the elderly, particularly frail elderly.

General history - taking includes symptoms of any systemic illness like anemia, weight loss, diabetes mellitus, neurological disease or any psychiatric illness. History of any mobility problems, medications used and diet taken are also important.

Bowel history includes number of bowel movements every week, the stool consistency, the duration of constipation, straining or symptoms of rectal outlet delay, faecal soiling or incontinence, rectal pain or bleeding and history of laxative use.
**Physical examination**
Systemic examination includes abdominal examination and neurological and cognitive assessment.

**Rectal examination**
(Perianal, digital and proctoscopy)

It will detect faecal impaction, haemorrhoids, anorectal disease, condylooma, rectal prolapse and perianal faecal soiling. Internal and external anal sphincter tone are to be assessed. Perianal sensation will be impaired and anal reflex lost in sacral cord disease, leading to rectal outlet delay.

**INVESTIGATION**

1) Basic laboratory work - up
Complete blood count, stool for OBT, serum electrolytes, blood glucose, liver and thyroid function tests and bone-mineral density.

2) Plain X-ray of abdomen
It will detect any fecal impaction, bowel obstruction, mass lesions, or any acute complications like sigmoid volvulus.

3) Double contrast barium enema
It requires bowel preparation but can detect volvulus, megarectum, colonic inertia or pelvic floor dyssynergia.

4) Colonoscopy
This is indicated if there is unexplained weight loss, anemia or recent change of bowel habit without obvious cause. An adequate bowel preparation is also required but it is more useful than barium enema for detecting neoplastic conditions and angio-dysplasia. A biopsy can also be taken, if required.

5) Anorectal function tests
These are indicated in patients with persistent symptoms of rectal outlet delay or fecal incontinence due to anal sphincter weakness. Endoanal ultrasound is useful to study the morphology of the anal sphincters.

**COMPLICATIONS OF CONSTIPATION IN ELDERLY**

1) Fecal Incontinence
This should be considered in any elderly patient complaining of “diarrhoea”. Many patients are reluctant to discuss this “hidden problem” even with their physician, although it is most distressing. It is reported to occur in 4% - 27% of the elderly; in the institutionalized elderly people, the frequency may go up to 60%. Physical examination focuses on assessment of cognition, mobility and sphincter abnormalities.

2) Fecal Impaction
Stool impaction is a major complication of constipation in the elderly. It is the primary reason for acute hospitalization in 27% of geriatric patients in one year.

Symptoms of fecal impaction may include anorexia, vomiting, constipation, abdominal pain and even diarrhoea or fecal incontinence; urinary symptoms can also occur. Frail elderly patients may present with fever, delirium, abdominal distension, tachypnoea and cardiac arrhythmias. Abdominal examination may reveal a palpable stool mass, and rectal examination may reveal hard or soft stool in the rectum. Laboratory examination often shows leucocytosis; plain abdominal radiograph will show faecal mass, gut dilatation with fluid levels.

3) Stercoral perforation
Pressure from a hard faecal mass in a chronically constipated elderly subject may lead to colonic ischaemia and ulceration known as stercoral ulcer which can lead to perforation and sudden abdominal pain.

4) Urinary retention
Marked rectosigmoid faecal unipaction may impinge on the bladder neck leading to urinary retention and even bilateral hydronephrosis and renal failure.

5) Sigmoid volvulus
It is the third commonest cause of large gut obstruction in developed countries. Colonic dysmotility resulting from Parkinson’s Disease, spinal cord disease and even neuroleptic drugs can commonly cause sigmoid volvulus.

6) Rectal prolapse
This results from prolonged straining at stool in the constipated elderly and causes fecal soiling.

7) Other complications
   i) Diverticular disease
   ii) Colonic pseudo-obstruction in frail elderly
   iii) Impaired quality of life

**MANAGEMENT OF CONSTIPATION IN ELDERLY**

I) Non - pharmacological treatment (First line therapy)
A) Education
Patients with mild constipation should be encouraged to discontinue chronic laxative therapy. Educational materials
like news letters and also the media can help in spreading the message of life-style changes in the elderly particularly with regard to diet and exercise.

**B) Diet**
Observational studies have emphasized the potential usefulness of increasing dietary fibre, fluid and fruit in older people with risk of constipation. At least 10g of fibre with additional fluids should be recommended to patients. This means more of whole meal or whole grain bread, porridge, fresh fruit (preferably unpeeled), seeded berries, raw or cooked vegetables, beans and lentils.

**C) Physical exercise**
Regular physical exercise, daily exercise in bed, abdominal massage, pelvic floor and sphincter strengthening exercises, (for rectal outlet delay) are all beneficial.

**D) Toileting habits**
Toileting habits should be regular. Foot stool elevation of the legs during evacuation is useful for those with weakened abdominal and pelvic muscles. Anorectal diseases should be treated. Bathrooms should be comfortable and privacy maintained in old-age institutions.

**II) Pharmacological treatment**

**A) Functional constipation**
Bulk laxatives are to be taken with adequate fluids. These are natural fibres like psyllium and Ishabgul husks and synthetic compounds such as calcium polycarbophil and methylcellulose. If patients are intolerant to bulk laxatives, 1-3 tablets of senna, a stimulant laxative, can be given at bed time. Frail elderly patients may need long-term therapy. If symptoms persist, any of the hyperosmolar laxatives like sorbitol, lactulose or lactitol may be added.

**B) Colonic fecal impaction**
Arachis oil retention enemas can be used daily till there is clinical or radiological resolution of obstruction. This is followed by daily tap water enemas till there is no further washout.
When the patient has easy access to a toilet, polyethylene glycol (a potent hyperosmolar laxative) 0.5 to 2L daily

---

*Fig.3: Approach to management of constipation in the elderly (Ref: Harari, 2009)*
with fluids should be given in acute setting, followed by maintenance therapy with senna and lactulose.

**C) Rectal outlet delay**

Manual disimpaction may be needed. Glycerine is a hyperosmolar laxative used in suppository form. It can be used after disimpaction once daily after breakfast for 2 weeks and subsequently as required. Bisacodyl suppository can also be used.

**D) Fecal Incontinence**

The underlying abnormality, including fecal impaction, if any, should be treated. Bowel habit training may be useful for patients with altered cognition and mobility. Regular enemas or suppositories may be used. Other treatment modalities are loperamide, biofeedback and surgical repair of sphincter defects, if any.

**Other agents used in constipation**

i) Magnesium salts (hydroxide) is not suitable for long-term use as it can induce hypermagnesemia.

ii) Prokinetic agents also work as laxatives by directly stimulating cellular release of acetylcholine in the myenteric plexus.

iii) Enterokinetic agents e.g. tegaseroid (a 5-HT4 agonist) is useful in chronic constipation, but it is not routinely recommended for use in the elderly.

Approach to management of constipation in the elderly is depicted in Fig. III.

**CONCLUSION**

Although gastrointestinal bleeding and neoplasia are common problems in the geriatric patient, disorders of function and motility are also important and can present in atypical fashion. Added to this is the confounding effect of various co-morbidities and medications. Hence, a high index of suspicion is warranted.

**REFERENCES**


