Gastroenterology in the elderly

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Abstract

Gastrointestinal (GI) disorders are the third most common cause of general practice consultations for patients >65 years in developed countries. A number of changes in the structure and function of the GI tract occur as a normal part of ageing. However, with increasing age, the incidence of both benign and malignant GI disease rises. Although GI disorders do not show particular characteristics in elderly compared with younger adults, they can present with more severe symptoms as a result of co-morbidities and polypharmacy. Adverse reactions to non-steroidal anti-inflammatory drugs are more common in people aged >65, and are a leading cause of hospitalization in this age group. Dysphagia and constipation are also more common, as is diverticular disease. Inflammatory bowel disease appears to show a second peak of onset between ages 60 and 80 years, and mesenteric intestinal ischaemia is largely confined to the elderly population. This article reviews the reasons for these differences, where these are known, and considers aspects of diagnosis and management that are particularly relevant in elderly patients.

Keywords Chronic motility disorders; functional bowel disorders in the elderly; gastrointestinal disorders in the elderly; irritable bowel syndrome; mesenteric ischaemia; MRCP; obscure gastrointestinal bleeding; polypharmacy; upper gastrointestinal bleeding

Upper gastrointestinal (GI) diseases

The prevalence of upper GI disease increases in people aged 65 years and over. Conditions such as gastro-oesophageal reflux disease, peptic ulcer and gastric cancer become more common with advancing age. Older individuals also tend to have a high burden of co-morbid factors, including *Helicobacter pylori* infection, and higher use of medication such as non-steroidal anti-inflammatory drugs (NSAIDs), bisphosphonates and corticosteroids.[1]

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Key points

- Drug-related gastrointestinal symptoms are common in elderly people, and it is important to be aware of this to avoid over-investigation and over-treatment
- Occult gastrointestinal bleeding is notoriously difficult to diagnose among all age groups, and in 15–20% of patients the cause remains elusive despite extensive evaluation
- The diagnosis of acute mesenteric intestinal ischaemia depends on a high degree of clinical suspicion in patients with risk factors for thromboembolic events

Unfortunately, in elderly patients with these disorders the symptoms can be mild or atypical, resulting in delayed diagnosis. The practitioner needs to maintain a high degree of clinical suspicion when presented with GI symptoms in this group of patients.

Upper gastrointestinal bleeding

Acute upper GI bleeding is a common and represents a potentially life-threatening medical emergency. It is associated with higher rates of hospitalization, morbidity and mortality in the elderly population, largely because of multiple co-morbidities. Age is an independent risk factor for death from upper GI bleeding, as are *H. pylori* infection, use of NSAIDs and anticoagulation.

These patients require prompt risk assessment and resuscitation, followed by early endoscopy and endotherapy to secure haemostasis. Continued severe bleeding is an indication for radiological intervention or surgery in suitable patients.

Drug-induced gastrointestinal disorders

Medical drug use increases with age, and the elderly are at increased risk of adverse drug reactions. Multiple morbidities and polypharmacy are common in individuals during old age. GI symptoms resulting from either prescription medication or over-the-counter drugs are frequently encountered in geriatric practice but often mistaken for a symptom of intrinsic organic disease, leading to over-investigation and over-treatment.[2]

Non-steroidal anti-inflammatory drugs

Oral NSAIDs remain the most frequently prescribed medication in the UK for musculoskeletal disorders, such as osteoarthritis and chronic backache. GI manifestations, notably peptic ulceration and bleeding, are the most common and life-threatening adverse effects associated with NSAIDs.

In elderly individuals, NSAID-induced adverse effects have become a leading cause of hospitalization, with a >4-fold increase in mortality from GI ulceration. Up to half of NSAID-induced gastroduodenal mucosal lesions are asymptomatic.

Proton pump inhibitors (PPIs) and cyclooxygenase-2-selective NSAIDs can be used to mitigate the adverse effects of conventional NSAIDs. Topical NSAIDs, with their reduced systemic

absorption, can present a viable option for patients at increased risk of serious NSAID-related adverse events.

Opioids

Pain is a common complaint in elderly people, and opioids are useful agents for the management of both acute and chronic pain. Opioids are known to cause opioid-induced bowel dysfunction and opioid-induced constipation, and these adverse effects can be particularly problematic for elderly patients.

Antibiotics

Physiological changes in the gut microflora of elderly individuals appear to manifest as a proliferation of potentially pathogenic species at the expense of 'healthy' bacteria (lactobacilli, bifidobacteria). This altered balance has the potential to augment the risk of antibiotic-related adverse GI effects, including *Clostridium difficile* infection — although the latter can also appear as a sporadic illness with increased frequency in users of PPI therapy. *C. difficile* infection can be severe in elderly people, and carries a high risk of recurrence and mortality.

Chronic gastrointestinal motility disorder

Normal ageing is associated with various changes in GI motility, but the clinical significance of such changes remains unclear. Large numbers of enteric neurones (the component of the autonomic nervous system that modulates GI motility) can be lost with age, but the GI tract remains surprisingly functional.

A major compounding factor in the interpretation of motor phenomena throughout the GI tract in this age group is the frequent coexistence of neurological, endocrinological and other diseases, which can be independently associated with defective motility. Furthermore, certain drugs commonly prescribed in elderly patients, including anticholinergics, antidepressants, opioid analgesics and calcium antagonists, can affect GI tract motility.

Dysphagia

Elderly individuals frequently suffer from oropharyngeal muscle dysmotility with dysphagia. Reductions in oesophageal peristalsis and low oesophageal sphincter pressure are also more common in the elderly, leading to dysphagia and gastro-oesophageal reflux disease. Although achalasia is generally uncommon, it needs to be considered in the differential diagnosis. The combination of dysphagia and weight loss should prompt consideration not only of cancer, but also of an underlying neurological cause, such as motor neurone disease with bulbar involvement, or Parkinson's disease.

Constipation

Constipation is one of the GI disorders most frequently encountered in clinical practice in developed society. It is more common in females, and its prevalence increases with age. Abnormalities in innervation of the colon may play a significant role in changes in colonic motility, leading to delayed colonic transit in elderly individuals.

Evaluation of constipation begins with a detailed medical history (with a particular focus on an obstetric history in women) and a digital rectal examination. Key self-management strategies include exercise, dietary modification and use of different laxatives to regularize the bowel habit, as appropriate. Simple bulking laxatives, osmotic agents or stool softeners are usually effective and may need to be continued long term.

Iron deficiency anaemia

This topic is discussed elsewhere in detail, so our comments are limited to some specific issues relevant to older patients. Iron deficiency is the most common cause of anaemia worldwide and can be the first indicator of a more serious underlying condition.

Iron deficiency anaemia in elderly individuals in developed countries is more often a clue to occult upper and lower GI lesions than a consequence of dietary factors. The major cause of iron deficiency in elderly patients is blood loss, either overt or covert ('obscure'). Overt blood loss is by definition obvious, manifesting as haematemesis, melaena, epistaxis or haematuria. It should prompt appropriate investigation, often with endoscopy or colonoscopy in the first instance.

Functional iron deficiency, which can occur in this age group secondary to acute or chronic inflammatory conditions, is diagnosed when the transferrin saturation is <20% in the presence of a normal or raised serum ferritin concentration.

GI causes of iron deficiency, including atrophic gastritis, *H. pylori*-related gastritis and coeliac disease, should be considered in patients with otherwise unexplained iron deficiency. Several studies have shown that approximately 15—20% of patients with newly diagnosed coeliac disease are over the age of 65.

Obscure GI bleeding

Obscure bleeding is defined as bleeding from the GI tract that persists or recurs without an obvious cause after an upper GI endoscopy and colonoscopy (Table 1). This is notoriously difficult to diagnose. The evaluation of obscure GI bleeding includes a judicious search for the source of the bleed. This should be guided by the clinical history, but the first-line investigation is often computed tomography (CT) of the abdomen and pelvis. Capsule endoscopy should be reserved for patients with recurrent or transfusion-dependent anaemia. Additional investigations can, according to

Aetiology of obscure GI bleeding

Upper GI lesion	Lower GI lesion
Cameron's erosions	Angiodysplasia
Peptic ulcer	Neoplasm
Fundal varices	
Angiodysplasia	
Dieulafoy's lesion	
Gastric antral vascular ectasia	
Small intestinal bleeding	**Uncommon causes**
Tumours	Haemobilia
Angiodysplasia	Haemosuccus pancreaticus (source of bleeding within the pancreatic duct)
NSAID-induced enteropathy	
Coeliac disease	
Dieulafoy's lesion	Aortoenteric fistula
Crohn's disease	
Meckel's diverticulum (consider in patients aged <40 years)	

Table 1

clinical indication, include push or balloon enteroscopy, angiography and intraoperative enteroscopy. The underlying cause remains undiagnosed in 15–20% of patients, but these patients can be reassured provided serious pathology has been excluded.[3]

Diverticular disease

Diverticular disease is very common in the elderly. It is present in 65% of 65-year-olds, and is asymptomatic in 80–85% of those affected. The remaining 15–20% develops symptomatic diverticular disease, usually manifest as non-specific abdominal pain and intermittent rectal bleeding. A small minority, up to 5%, develop complications that include diverticulitis, bleeding, obstruction, abscess formation and, rarely, fistulae. The sigmoid colon is involved in 90% of patients.

Investigations – a plain radiograph is warranted in patients with suspected perforation. CT is useful to evaluate diverticulitis with abscess or to exclude a collection. If indicated, colonoscopy is perfectly safe in diverticular disease.

Treatment – in symptomatic uncomplicated diverticular disease, the goal of treatment should be alleviation of symptoms and prevention of recurrent attacks. Several therapies have been proposed with variable success, including high-fibre diet with or without fibre supplementation and antispasmodic agents.

Inflammatory bowel disease (IBD)

Some studies suggest that IBD displays a bimodal age distribution at presentation, with the possible second peak at 60–80 years of age. The symptoms in elderly individuals may not differ greatly from those in the younger adult age group, but they are more likely to raise suspicion of diverticular disease, ischaemic colitis or bowel cancer. Segmental colitis associated with diverticular disease in elderly people can be histologically indistinguishable from IBD.

Patients with elderly-onset IBD are more likely to present evidence of co-morbidities and polypharmacy than those diagnosed at a younger age, with likely implications for therapeutic decision-making. The treatment of IBD in elderly patients is generally similar to that in younger adults, but the therapeutic approach in the elderly should be 'start low, go slow'.

Although the indications for anti-tumour necrosis factor-α agent in elderly patients are generally similar to those for younger ones, lower response rates and a higher incidence of adverse events have been reported in elderly populations. Adherence to the entire work-up before starting biological treatment administration is very important. The safety profile of conventional immune modulators and biological therapy is acceptable for their routine use in suitable patients, but more data are required on the safe use of these drugs specifically in the elderly population.

Failure of medical treatment for IBD is the most common indication for surgery in patients aged >60 years, as for their younger counterparts.[4]

Mesenteric intestinal ischaemia

Acute mesenteric ischaemia

This refers to the sudden onset of small intestinal hypoperfusion. The pathogenesis is occlusive or non-occlusive obstruction of the arterial blood supply, or obstruction of venous outflow. Colonic ischaemia is more common but generally much less serious, usually resolving spontaneously within a few days.

Occlusive arterial obstruction can be caused by acute embolism or thrombosis, and most commonly affects the superior mesenteric artery. Venous thrombosis results from obstruction of the intestinal venous outflow tract, including the superior and inferior mesenteric veins, splenic vein or portal vein. Non-occlusive mesenteric ischaemia is the result of a low-flow state and is most commonly seen with low cardiac output or use of vasopressors. Occasionally it may be difficult to distinguish acute ischæmic colitis from sudden onset of idiopathic inflammatory bowel disease.

Acute insufficiency of mesenteric arterial blood flow accounts for 60–70% of cases of mesenteric ischaemia; where it causes small bowel ischaemia, the mortality rate exceeds 60%. For patients with acute symptoms, rapid diagnosis is imperative because the clinical consequences, including sepsis, intestinal infarction and death, can be catastrophic. The diagnosis depends upon a high degree of clinical suspicion, especially in patients with risk factors, such as atrial fibrillation, heart failure, peripheral vascular disease or a history of hypercoagulability. Most patients show signs of peritonism with a raised plasma lactate concentration.

Multi-detector CT angiography without oral contrast is the initial imaging modality of choice for evaluating haemodynamically stable patients with acute abdominal pain and clinical features suggestive of acute mesenteric ischaemia. However, mesenteric arteriography remains the gold standard diagnostic study for acute arterial ischaemia, and should be performed in patients in whom a high degree of clinical suspicion remains after a negative CT angiogram. Urgent surgical review should also be sought.

The initial management of patients with acute intestinal ischaemia includes aggressive haemodynamic monitoring and support, correction of metabolic acidosis, initiation of broad-spectrum antibiotics and placement of a nasogastric tube for gastric decompression. Once these steps have been taken, the goal is to restore intestinal blood flow as rapidly as possible.[5]

Chronic mesenteric ischaemia

This usually develops in patients with mesenteric atherosclerosis. Patients complain of recurrent postprandial abdominal pain, which is caused by their inability to augment intestinal blood flow to meet the demand of digestion. These patients can develop 'food fear' and lose a considerable amount of weight. A high index of clinical suspicion is crucial to making this diagnosis.

The 'watershed areas' at the junctions of the supply territories of the major intestinal arteries – the splenic flexure (superior mesenteric artery) and rectosigmoid junction (inferior mesenteric artery) – are most susceptible to ischaemia.

The diagnosis of chronic mesenteric ischaemia is supported by the imaging demonstration of high-grade stenosis in mesenteric arteries. Physical findings, apart from weight loss, are usually minimal. Abdominal examination reveals an aortic bruit in approximately 50% of patients. Therapeutic options for patients with symptoms thought to be attributable to chronic mesenteric ischaemia include surgical reconstruction and percutaneous transluminal angioplasty, with or without placement of a stent. ◆

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TEST YOURSELF

To test your knowledge based on the article you have just read, please complete the questions below. The answers can be found at the end of the issue or online here.

Question 1

A 78-year-old woman presented as an emergency with an acute onset of lower abdominal pain associated with an episode of rectal bleeding. She had a past history of ischaemic heart disease complicated by atrial fibrillation.

On clinical examination, she was uncomfortable, with pain. Her temperature was 37.0°C, heart rate 100 beats/minute and irregularly irregular, and blood pressure 110/70 mmHg. The abdomen was diffusely tender, and bowel sounds were present but sluggish.

Investigations

- Haemoglobin 152 g/litre (115–165)
- White cell count 12.2 × 10^9/litre (4.0–11.0)
- C-reactive protein 112 mg/litre (<10)

What is the most likely diagnosis?

A. Acute appendicitis
B. Acute mesenteric ischaemia
C. Colorectal malignancy
D. Diverticulitis
E. Inflammatory bowel disease

Question 2

A 67-year-old woman presented with acute onset of severe central abdominal pain and the passage of a small amount of blood per rectum. She had a past history of intermittent claudication in the left leg, which was managed conservatively.

On clinical examination, there was diffuse tenderness throughout the abdomen.

What is the most appropriate investigation for the likely diagnosis?

A. Abdominal X-ray
B. Colonoscopy
C. CT mesenteric angiogram
D. Doppler ultrasonography of the abdomen
E. Labelled white cell scan

Question 3

A 72-year-old man presented with a 2-month history of change in bowel habit. He had noticed frequent loose stools 2–3 times a day, formed to semi-formed and associated with urgency. He had also noticed lower abdominal pain, which improved on defecation. He had a past history of type 2 diabetes mellitus, which was adequately controlled on metformin. On clinical examination, he looked well. His temperature was 37.0°C, heart rate 100 beats/minute and irregularly irregular, and blood pressure 110/70 mmHg. Abdominal examination showed no palpable masses or evidence of free fluid.

Investigations

- Haemoglobin 108 g/litre (130–160)
- Mean cell volume 77 femtolitres (83–100)
- C-reactive protein 36 mg/litre (<10)
- Ferritin 112 micrograms/litre (15–300)
- Folic acid 6.8 micrograms/litre (2.0–11.0)
- Vitamin B_{12} 344 ng/litre (160–760)

What is the most likely diagnosis?

A. Bacterial overgrowth
B. Coeliac disease
C. Colorectal malignancy
D. Diabetic autonomic neuropathy
E. Drug-induced diarrhoea