HIV Disease: Gastrointestinal Manifestations in Older Patients

by Giridhar U. Adiga, T.S. Dharmarajan, and C.S. Pitchumoni

AIDS related deaths have considerably decreased since the introduction of highly active antiretroviral therapy. Availability of potent drugs, longer survival of adults with HIV disease, lack of awareness, a feeling of personal shame and guilt and blood transfusions received in an earlier era with inadequate screening techniques of donor blood have contributed to increased occurrence of HIV in older adults. In the elderly, AIDS is associated with shorter survival and varied manifestations. Being the largest lymphoid organ in the body, it comes as no surprise that the gastrointestinal system is vulnerable to HIV infection. The following is a discussion on HIV disease in older subjects, with a focus on the gastrointestinal manifestations.

INTRODUCTION

With the advent of protease inhibitors, the approach to acquired immune deficiency syndrome (AIDS) has changed with respect to diagnosis and management. Progression of human immunodeficiency virus (HIV) infection to AIDS and AIDS related deaths have consequently declined. Patients with HIV live longer today than before, with AIDS becoming increasingly important in geriatric practice (Table 1).

People over age 50 contribute to approximately 11% of all AIDS cases, a rapidly growing segment (2,3). The prevalence is as high as 29% in some African countries (4). The mean age at diagnosis of HIV infection and AIDS is progressively increasing (5). Older adults with HIV infection differ significantly in terms of risk factors, manifestations and management (6). The trend of AIDS being predominantly a disease of African American male homosexuals appears true also in the elderly (2). Current literature on HIV in the elderly is limited. This review will broadly discuss HIV disease in older subjects, emphasizing gastrointestinal aspects.

RISK FACTORS FOR HIV INFECTION IN OLDER ADULTS

Several factors render the elderly to the risk of acquiring HIV infection (7). Risk factors such as sexual con-
thinning of epithelial structures, increasing chances of acquiring HIV. Aging is associated with thymic atrophy and decreased cell mediated immunity (2,6).

Injection drug abuse and heterosexual contact though uncommon causes, nevertheless account for about 15% and 10% of cases respectively (6). Homosexuality in men remains the single most common mode of acquiring the disease (6). Entry of HIV through blood transfusions though common in 1980s has decreased significantly since the initiation of widespread screening of blood and blood products for HIV in 1985 (7).

**CLINICAL FEATURES**

HIV infection in the elderly is characterized by rapid clinical decline and decreased survival rates due to immune dysfunction, co-morbid conditions and delayed diagnosis (11). Non-specific manifestations like fatigue, anorexia, weight loss and memory deficits mimic chronic illnesses and day-to-day aging related complaints (6,12,13). Early features include generalized lymphadenopathy, thrush, leukoplakia, shingles, aphthous ulcers and thrombocytopenia. Serious opportunistic infections and other AIDS defining illnesses warrant further diagnostic evaluation.

Gastrointestinal (GI) manifestations are among the most common features of AIDS, largely a result of opportunistic infections (14,15). Advent of highly active antiretroviral therapy (HAART) in 1995 has decreased the incidence of serious opportunistic infections in the gastrointestinal system as well as other sites (15). Despite this, GI abnormalities are common among HIV infected patients (16,17). In a recent study of 671 patients, 38.9% had recent diarrhea, 28.3% had chronic diarrhea, 40.3% had history of liver disease and more than 85% had at least one abnormal GI function (17). Since the induction of HAART, most GI complaints are now considered secondary to non-HIV related conditions or drug toxicity from antiretroviral agents (18). As the elderly are identified late in the course of the disease, theoretically, they are more likely to manifest opportunistic infections than younger counterparts (13). In a review of 13 older HIV infected patients published before the advent of HAART, the initial clinical manifestation was an opportunistic infec-

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Table 1: Changing patterns of HIV Demographics in USA (1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>1993</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number living with AIDS</td>
<td>173,772</td>
<td>362,827</td>
</tr>
<tr>
<td>Interval AIDS related deaths</td>
<td>45,850</td>
<td>15,603</td>
</tr>
<tr>
<td>Mortality, 55 years or older</td>
<td>**</td>
<td>1,833  (2000)</td>
</tr>
<tr>
<td>Number of new AIDS cases</td>
<td>78,954</td>
<td>24,804</td>
</tr>
<tr>
<td>Total number of HIV infection cases</td>
<td>**</td>
<td>174,026</td>
</tr>
<tr>
<td>HIV infected, 50 years or older</td>
<td>**</td>
<td>11,837</td>
</tr>
</tbody>
</table>

* Data compiled from CDC report
** Not available
HIV Disease: Gastrointestinal Manifestations in Older Patients

Table 2
HIV Infection and the Gastrointestinal Tract: Oral, Esophageal and Intestinal Disorders (14,20,21)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>b. Other Drug induced esophagitis GERD Idiopathic ulcers</td>
<td></td>
<td></td>
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</tbody>
</table>

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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Virus: Adenovirus Calicivirus Astrovirus HIV?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Bacteria: Mycobacterium Avium Complex Mycobacterium tuberculosis Salmonella species</td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

*The list is representative and not necessarily complete, GERD = Gastroesophageal reflux disease, KS = Kaposi’s Sarcoma

**GASTROINTESTINAL MANIFESTATIONS**

Tables 2 and 3 list gastrointestinal manifestations of HIV disease and Table 4 presents the hepatobiliary and pancreatic complications.

1. **Anorexia and Weight Loss**

Gastrointestinal diseases in general can compromise the ability of older subjects to maintain adequate nutrition and weight. Under nutrition is a widely prevalent problem in the elderly with the estimated prevalence ranging from 10% to 40%, higher in the institutional setting than in the community. Anorexia is a common non-specific symptom associated with gastrointestinal and other diseases or use of medications.
Table 3
Gastrointestinal Infections in AIDS*(18,20,21,22)

<table>
<thead>
<tr>
<th>Organism</th>
<th>Clinical Features</th>
<th>Diagnosis</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Opportunistic Agents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Viral Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cytomegalovirus</td>
<td>Fever, fecal leukocytes, crampy abdominal pain</td>
<td>Biopsy for histology and culture</td>
<td>Ganciclovir or foscarnet</td>
</tr>
<tr>
<td>Adenovirus</td>
<td>Diarrhea; GI involvement rare</td>
<td>Not indicated</td>
<td>None</td>
</tr>
<tr>
<td>Calicivirus</td>
<td>GI involvement rare</td>
<td>Experimental</td>
<td>None</td>
</tr>
<tr>
<td>Astrovirus</td>
<td>GI involvement rare</td>
<td>Experimental</td>
<td>None</td>
</tr>
<tr>
<td>HSV</td>
<td>Colitis, diarrhea; GI involvement rare</td>
<td>Viral cultures, biopsy</td>
<td>Acyclovir</td>
</tr>
<tr>
<td><strong>Protozoal Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidia</td>
<td>Watery diarrhea, fecal leukocytes, no fever</td>
<td>Stool microscopy, EIA</td>
<td>Paromomycin, HAART</td>
</tr>
<tr>
<td>Isospora</td>
<td>Watery diarrhea</td>
<td>Modified AFB stain</td>
<td>TMP-SMX</td>
</tr>
<tr>
<td>Microsporidia</td>
<td>Watery diarrhea, no fecal Leukocytes</td>
<td>Special trichrome stain, Giemsa stain, electron microscopy</td>
<td>Albendazole</td>
</tr>
<tr>
<td>Cyclospora</td>
<td>Watery diarrhea</td>
<td>Modified AFB stain</td>
<td>TMP-SMX</td>
</tr>
<tr>
<td><strong>Fungal Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histoplasmosis</td>
<td>Fever, diarrhea, abdominal pain</td>
<td>Fungal cultures and histopathology</td>
<td>Amphotericin B</td>
</tr>
<tr>
<td>Cryptococcus</td>
<td>GI involvement rare</td>
<td>Same as above</td>
<td>Amphotericin B</td>
</tr>
<tr>
<td>Candida</td>
<td>GI involvement rare</td>
<td>Same as above</td>
<td>Fluconazole</td>
</tr>
<tr>
<td>P. Carini</td>
<td>GI involvement rare</td>
<td>Same as above</td>
<td>TMP-SMX</td>
</tr>
<tr>
<td><strong>Bacterial Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mycobacterium avium complex</td>
<td>Watery diarrhea, no fecal leukocytes, abdominal pain</td>
<td>Stool and blood cultures</td>
<td>Macrolide and ethambutol with or without rifabutin</td>
</tr>
<tr>
<td>M. Tuberculosis</td>
<td>Colitis, GI bleed, iliocolonic pseudotumor</td>
<td>Biopsy and cultures</td>
<td>Standard combination therapy</td>
</tr>
<tr>
<td><strong>Nonopportunistic Agents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protozoal Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giardia</td>
<td>Diarrhea, flatulence, foul smelling stools</td>
<td>Stool microscopy, EIA</td>
<td>Metronidazole</td>
</tr>
<tr>
<td><strong>Bacterial Infections</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmonella</td>
<td>Fever, watery diarrhea, fecal Leukocytes</td>
<td>Stool/blood culture</td>
<td>Quinolones</td>
</tr>
<tr>
<td>Shigella</td>
<td>Fever, diarrhea, fecal Leukocytes</td>
<td>Stool culture</td>
<td>Quinolones</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>Bloody or watery diarrhea, fever, fecal leukocytes</td>
<td>Stool/blood culture</td>
<td>Quinolones or macrolides</td>
</tr>
<tr>
<td>C. difficile</td>
<td>Fever, abdominal pain, diarrhea, fecal leukocytes, recent antibiotic use</td>
<td>Stool toxin</td>
<td>Oral metronidazole or vancomycin</td>
</tr>
</tbody>
</table>

*The list may not be complete, represents common examples: EIA = Enzyme immunoassay, HSV = Herpes simplex virus, HAART = Highly Active Antiretroviral Therapy, TMP-SMX = Trimethoprim-sulfamethoxazole.
"Wasting syndrome" with weight loss over 10% along with fever or diarrhea is a recognized AIDS defining illness (23). It has been felt that HAART has decreased the prevalence of wasting syndrome associated with HIV disease (23). Though the precise prevalence of wasting in the HIV infected elderly in this country is not clear, studies done elsewhere reveal a prevalence of 30%—100% (4,24). In fact, weight loss and wasting were among the most common features in elderly HIV patients. Interestingly, in a study of HIV trends from 1984 to 1995 in Mexico, although the mortality decreased, prevalence of wasting syndrome increased from 36% to 57% (25). Hence HIV infection is a consideration in the evaluation of weight loss in older adults. Evaluation of weight loss includes assessment of nutritional intake, access to food, physical activity and socioeconomic aspects in addition to disease processes.

Causes of wasting with HIV infection include viremia, opportunistic infections, anorexia and nausea induced by medications including HAART and gastrointestinal conditions that affect nutritional intake or absorption (23) (Table 5). Malabsorption in HIV is usually multifactorial with resultant macro and micronutrient deficiencies. Among micronutrients, vitamin B₁₂, beta carotene and selenium deficiencies are more common (26). Vitamin B₁₂ deficiency is particularly striking occurring in 20%—40% of HIV infected patients (27). B₁₂ deficiency is common in the geriatric age group (28) and hence it assumes more relevance in HIV infected older adults. Management of wasting includes treating HIV with HAART, treating diarrhea and other comorbidities including depression and improved nutritional intake.

### Table 4  
**HIV Infection and the Gastrointestinal Tract: Hepatobiliary and Pancreatic Disorders**

**Hepatic Diseases**

| 1. Hepatitis | Virus B, C, D  
| Cytomegalovirus  
| Epstein-Barr Virus  
| Herpes Simplex Virus |
|---|---|
| 2. Granulomatous disease | Mycobacterium Avium Complex  
| *M. tuberculosis*  
| Fungal: *Histoplasma capsulatum*  
| *Cryptococcus neoformans*  
| Protozoa: *Pneumocystis carinii*  
| Toxoplasma  
| Hepatotoxic drugs |
| 3. Tumors | Kaposi's Sarcoma  
| Non-Hodgkin's lymphoma |
| 4. Vascular | Peliosis hepatic |

**Gall Bladder/Biliary Tract**

- AIDS Cholangiopathy  
- AIDS related cholangitis  
  - Pathogens: *Cryptosporidium*  
  - *Microsporidia*  
  - *Cytomegalovirus*  
  - *Mycobacterium Avium Complex*  
(Papillary stenosis, sclerosing cholangitis)

**Pancreas**

- Acute pancreatitis—AIDS related infections  
- HIV pancreatitis  
- Hyperamylasemia without pancreatitis  
- Drug induced pancreatitis  
  - (Eg. Pentamidine, dideoxyinosine, trimethoprim-sulfamethoxazole)  
- Chronic pancreatitis  
- Pancreatic lymphoma  
- Pancreatic abscess

2. **Dysphagia and Upper Digestive Tract Manifestations**

Dysphagia is a common clinical entity in 10%—40% of the elderly; it may be transfer (oro-pharyngeal) dysphagia secondary to neuromuscular disorders or transit dysphagia (secondary to esophageal disorders) (29). While oropharyngeal dysphagia is more common in non-HIV elderly, transit dysphagia secondary to esophagitis and odynophagia are more relevant in HIV infected individuals.

Oropharyngeal involvement occurs in up to 90% of HIV infected patients during the course of disease. The incidence of oral candidiasis directly relates to CD4 count and affects three-quarters of patients (18).
Painful, shallow aphthous ulcers are common and impede oral intake. Oral hairy leukoplakia, caused by Epstein-Barr Virus (EBV), rarely occurs outside of HIV and should prompt diagnostic testing (18). Vesicular, ulcerated oral lesions are caused by Herpes Simplex virus (HSV) or Cytomegalovirus (CMV). Topical nystatin or clotrimazole usually suffice for oral thrush. Refractory cases may need oral fluconazole or itraconazole. Resistant aphthous ulcers may respond to brief courses of thalidomide or steroids (Table 2).

Esophageal disease presents with dysphagia, odynophagia or chest pain. Candida esophagitis is the most frequent basis usually occurring when the CD4 counts are less than 300. In the presence of concomitant oropharyngeal candidiasis, diagnosis does not entail further testing. In difficult cases, endoscopy may reveal linear, yellowish-white confluent plaques. Oral therapy with fluconazole is superior to ketoconazole with rapid resolution of symptoms. Frequent relapses require chronic maintenance therapy with oral fluconazole; resistance may necessitate use of amphotericin B (21).

CMV infection usually occurs when the CD4 counts fall below 100 and causes esophageal ulceration. (continued on page 40)
tions, often deep, singular or multiple. Diagnosis is established by histological examination of the biopsy specimen from the ulcer base, demonstrating characteristic intracytoplasmic and intranuclear inclusion bodies. As cultures may be positive even in the absence of disease, they do not establish the diagnosis on their own (21). CMV is the most common cause of viral esophagitis, though the most common manifestation of CMV infection is colitis (18). Treatment involves 2–3 weeks of intravenous gancyclovir or foscarnet.

Other rare causes of esophageal disease include HSV esophagitis, Mycobacterium tuberculosis, Mycobacterium avium complex (MAC), histoplasmosis, cryptosporidium, Kaposi’s sarcoma and lymphoma. Esophageal strictures can occur as a complication of esophagitis from CMV.

Altered esophageal peristalses with the simultaneous use of multiple medications predispose the elderly to pill induced esophagitis. The presentation may be sudden onset of severe odynophagia. Pills consumed prior to sleep are likely to be a basis as both salivary secretion and frequency of swallows decrease during sleep. Pill induced esophagitis occurs with any CD4 count and are usually associated with zidovudine and zalcitabine among antiretroviral agents (18). Other commonly implicated agents that the patient may be on include potassium pills, alendronate, NSAIDs, aspirin and iron (29).

3. Diarrheal Diseases

Diarrhea occurs in more than 50% of patients with AIDS during the course of their disease (21) (Tables 2 and 3). Studies exclusively in older adults are rare; one retrospective study from the Congo cited diarrhea in 60% of HIV patients aged 55 and over (24). CD4 counts less than 200 appear to be associated with chronic debilitating diarrhea. Offending organisms are identified in up to 80% of cases of chronic diarrhea, a third of them with multiple pathogens (18). Diarrhea is particularly evident in homosexual men; “gay bowel syndrome” was a well recognized entity before the advent of AIDS. Diarrhea in HIV patients may result from non-opportunistic pathogens, opportunistic pathogens or may be pathogen negative. Older subjects are vulnerable to complications of diarrhea including fluid and electrolyte imbalance, malnutrition and higher fatality compared to the young.

Diarrhea Due to Non-Opportunistic Pathogens

Non-opportunistic pathogens such as salmonella, shigella, campylobacter, and giardia cause diarrhea at any stage of HIV disease. Diarrhea is often associated with bacteremia and septicemia in these patients (22). Treatment with antibiotics is usually effective but relapses are common when CD4 counts are less than 200.

Diarrhea Due to Opportunistic Pathogens

An excellent review on this topic is presented by Lew, et al (20). Cryptosporidiasis, a parasitic infection is acquired by ingestion of the oocyst. Waterborne and person-to-person transmission occurs particularly in day care centers. The elderly with chronic illnesses are at risk of cryptosporidial infection even in the absence of HIV infection (30). Further, cryptosporidium can exist as a co-pathogen along with Clostridium difficile (30). Though cryptosporidiasis is self limited in immunocompetent persons, patients with AIDS can have chronic diarrhea resulting in fluid and electrolyte imbalance, abdominal pain and weight loss. Diagnosis is established by stool microscopy. No effective chemotherapeutic agents are available to treat cryptosporidiosis, although paromomycin may be palliative in some.

Microsporidia are obligate intracellular protozoans with complex life cycles. Microsporidia are causative in up to 40% cases of chronic diarrhea (21). Approximately 90% of human infections are due to Enterocytozoon bieneusi (20). They also cause hepatitis, biliary tract infection and ascites. Diagnosis of intestinal microsporidiasis is made by identification of spores using special stains in intestinal biopsy specimens, aspirates, touch preparations and stool samples. Treatment with albendazole 400 mg twice daily for 2–4 weeks may be effective for Septata intestinalis. There is no effective therapy for E. bieneusi, but metronidazole and trimethoprim-sulfamethoxazole therapy have shown some response (20).

CMV infection is the most frequent cause of viral diarrhea in patients with AIDS, occurring predominantly when the CD4 counts are below 100 (18). Gastrointestinal manifestations of CMV vary depending
on the sites involved; colon and esophagus are the most common sites. CMV colitis presents with abdominal pain, chronic watery diarrhea, fever and weight loss. GI bleeding and perforation have been reported with CMV colitis; toxic megacolon and strictures can occur as complications. Stool studies are usually negative and serological studies unhelpful. Diagnosis requires endoscopy with mucosal biopsy for histopathological examination and cultures. Treatment with intravenous gancyclovir for 3–4 weeks results in clinical improvement in about 75% of patients. Side effects include pancytopenia and nephrotoxicity. Treatment with HAART has significantly reduced the incidence of CMV in AIDS patients (18).

Mycobacterium avium complex (MAC), a commensal organism in the environment is a common bacterial infection among HIV infected individuals. Infection by MAC usually occurs when the CD4 counts are below 100. MAC causes an acquired systemic disease characterized by weight loss, fever, night sweats, anemia, hepatitis and diarrhea. The gastrointestinal system may be predominantly involved in disseminated disease. Diagnosis is made by culture of blood, stool, bone marrow or biopsy of small bowel or colon. A variety of agents are effective for management when used in combination. Therapy includes combination of a macrolide, either clarithromycin or azithromycin, with ethambutol. Rifabutin may be included as a third drug. Lifelong maintenance therapy with a macrolide in patients with CD4 counts less than 50 is the current standard of care.

Clostridium difficile associated diarrhea (CDAD) is relatively common in geriatric practice as well as in HIV infected individuals (31,32). The two risk groups are also associated with recurrences (33,34). Hence a combination of old age and HIV infection can increase both the occurrence and recurrence of CDAD in HIV infected older adults. CDAD should be excluded in any older HIV infected patient with diarrhea.

Other opportunistic causes of diarrhea, though rare, include cyclospora, isospora, HSV, adenovirus and M tuberculosis. Both isospora and cyclospora infections are recognized by modified acid fast stain of stool or biopsy specimen and are effectively treated with trimethoprim-sulfamethoxazole (18). HSV usually causes proctitis and distal colitis and is not a major cause of diarrhea; treatment with acyclovir is sufficient. Adenovirus rarely involves the large bowel and causes diarrhea; no specific treatment is available (35). M tuberculosis, though more virulent, cause GI infection less so than MAC.

Pathogen Negative Diarrhea
In 10%–20% of patients with AIDS and diarrhea, an identifiable cause is not found despite extensive evaluation (21). Potential mechanisms include medications, unidentified pathogens, autonomic dysfunction, bacterial overgrowth, malignancy or HIV induced intestinal injury. Among antiretroviral agents, nelfinavir, didanosine, ritonavir and saquinavir can cause diarrhea (18). Concurrently used medications including antibiotics and non-prescription medications may be implicated.

4. HIV Enteropathy
Small intestinal dysfunction and mucosal damage not attributable to intestinal pathogens is termed HIV enteropathy (36). The GI tract, the largest lymphoid organ in the body, is substantially involved in the course of HIV infection (37). Other than predisposing to opportunistic infections, alteration in mucosal immunity leads to changes in mucosal architecture. HIV enteropathy is characterized by partial villous atrophy with epithelial hypoproliferation and dysmaturation of enterocytes (36). The symptoms of enteropathy may improve with HAART (18).

In general, management of diarrhea in an HIV patient is directed against the pathogen that is identified as discussed above. A pathogen can be identified in 50%–80% of the cases and 50% can be treated with a specific therapy (38). Symptomatic therapy with luminal agents includes fiber supplements, cholestyramine and kaolin. Antimotility drugs may be of use. Octreotide is a synthetic somatostatin with a longer half-life and may be effective in some patients. Adverse side effects occasionally outweigh the benefits.

5. Abdominal Pain
Abdominal pain in HIV disease is a common clinical problem of varied etiology. The causes of abdominal pain among older non-HIV patients may have similar-
Viral Hepatitis

Many patients with HIV also have evidence of hepatitis B (HBV) or hepatitis C (HCV) viral infections due to similar modes of transmission. The natural history of hepatitis may be affected by concomitant HIV infection. Hepatitis B is associated with increased rate of chronicity, and decreased rate of fibrosis, possibly related to the immunosuppressed state (18). As the liver damage in HBV is mainly immunologically mediated, presence of HIV does not worsen liver injury. In contrast, patients with HCV and HIV have more severe and rapidly progressing liver disease, related perhaps to increased viral replication favored by the immune suppressed state (18). Natural history of hepatitis A is not significantly affected by the presence of HIV (22).

Indications for therapy in patients co-infected with HIV and HBV or HCV is unclear. For patients well controlled on HAART, treatment indications appear similar to that of the non-HIV population (18). Liver functions should be carefully monitored as the effect of medications on coexistent hepatitis may be associated with significant liver injury. Other causes of injury may relate to opportunist infections.

Medication Induced Liver Injury

Hepatotoxicity is seen with antiretroviral agents. Nucleoside reverse transcriptase inhibitors (NRTIs) are associated with mild asymptomatic elevation of transaminases which may not require discontinuation of medication. However, fatal lactic acidosis with macrovesicular steatosis has been reported with some NRTIs especially stavudine, didanosine and zidovudine (43). When unexplained lactic acidosis occurs, this fatal condition should be suspected and the offending agent stopped. Among other anti-retroviral agents, ritonavir and nevirapine can cause hepatitis more commonly than other agents (18). The elderly are more likely to be on multiple medications raising the possibility of drug interactions and consequent liver injury.

Biliary Tract Diseases

Acaculus cholecystitis and HIV cholangiopathy are specific AIDS related biliary tract disorders which present with right upper quadrant pain, fever, vomiting

(continued on page 44)
and abnormal liver function tests (21). Acalculus cholecystitis is usually secondary to cryptococcus or CMV and is usually seen when the CD4 counts are less than 100. As the surgical risk is higher in older patients, laparoscopic cholecystectomy may be the preferred approach (18).

HIV cholangiopathy may present as papillary stenosis or sclerosing cholangitis either singly or in combination or as extrahepatic biliary stenosis (21). Jaundice is rare and CD4 counts are usually below 200. The offending agents include CMV, cryptosporidium, microsporidia or MAC. AIDS cholangiopathy has not been shown to predispose to cholangiocarcinoma or cirrhosis (18). Treatment involves treating underlying opportunistic infections, sphincterotomy or stenting (44).

Pancreatic Diseases

HIV infected patients experience increased incidence of pancreatitis as the CD4 counts decrease (45). In addition to non-HIV related causes, patients with HIV tend to have more drug induced and idiopathic pancreatitis (18). Though opportunistic agents are noticed in the pancreas at autopsy, their role in acute pancreatitis is unclear (18,44). Clinical features and management are similar to non-HIV patients; non-HIV related causes should be considered in the differential.

Didanosin (ddI), a NRTI can cause pancreatitis in up to 25% of patients treated with this agent (46). CD4 counts less than 100 and prior pancreatitis increases the risk of ddI induced pancreatitis (18). Pentamidine induced pancreatitis has been reported with both intravenous as well as long term aerosolized therapy (21). Other causes of drug induced pancreatitis include zalcitabine, lamivudine, sulfonamides and steroids. Discontinuation of the offending agent is required when identified.

7. Neoplasms

The increased occurrence of gastrointestinal malignancies in HIV infected individuals has been raised in the past (47). A study of 14,986 HIV infected patients demonstrated increased risk of both HIV related (KS and lymphoma) and non-HIV related malignancies (Hodgkin’s disease, skin cancer in males and colon cancer in females) (48). There is inadequate data on incidence of GI malignancies in older HIV patients; it is unclear if HIV infection increases the occurrence of colon cancer in elderly. Kaposi’s sarcoma (KS) is the most common HIV related GI malignancy accounting for about 60% of cases. Gastrointestinal KS is generally asymptomatic, unless extensively involved. Treatment with HAART has clearly reduced the rate of new cases of KS and improves prognosis (18,49). Non-Hodgkins lymphoma of the gastrointestinal tract is usually high grade, with short survival; presentation includes abdominal pain, altered bowel habits, intestinal obstruction and weight loss.

SUMMARY

HIV disease in older adults is an increasingly recognized health problem, posing challenges in management. Gastrointestinal manifestations and weight loss, often non-specific, are common initial presentations. While HAART regimens are equally applicable to all adults, very few treatment efficacy trials have targeted the geriatric age group. Treating the older HIV patient is a complex task, requiring close monitoring for tolerance, adverse drug events and drug interactions. Research is needed in the area of geriatric gastroenterology pertinent to HIV disease.

Reference

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GERIATRIC GASTROENTEROLOGY, SERIES #10

(continued from page 44)


