

# Gastroesophageal Reflux Disease and the Elderly

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## KEYWORDS

- Gastroesophageal reflux disease • Lower esophageal sphincter • Motility studies
- Barrett esophagus

## KEY POINTS

- Gastroesophageal reflux disease (GERD) is a prevalent disorder in the elderly, and seems to be associated with more severe and advanced disease in a population that is growing in size in the United States.
- Changes in esophageal physiology predispose to more esophageal damage in older patients, as well as to a frequent disconnect between the type and severity of symptoms and severity of mucosal damage.
- Comorbidities make the diagnosis and treatment of GERD more challenging in aged patients, yet the treatment goals and approach are similar in older and younger patients.
- Older patients may be at increased risk of complications from reflux therapy, whether medical or surgical.

## INTRODUCTION

Gastroesophageal reflux disease (GERD) is a common disorder affecting 20% of the United States population and 6% to 17% of the elderly.<sup>1</sup> GERD is not only common in the elderly, but when compared with younger counterparts, older patients have more intense patterns of abnormal acid contact time and advanced erosive disease.<sup>2</sup> The United States older population is growing and is at its highest level since 1900 according to the US Census Bureau. In 1900, there were fewer than 5 million Americans aged 65 and older. This rate increased to 35 million in 2000 and rose to more than 40 million by 2011, representing 13.8% of the total population.<sup>3</sup> By the year 2050, more than 20% of the United States population will be older than 65 years, and approximately 20 million individuals will be older than 85.<sup>4</sup>

There were about 1.5 million nursing home residents in 16,100 facilities according to the 2004 National Nursing Home Survey. The number of Americans needing long-term

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care is projected to double between 2000 and 2050.<sup>5</sup> A recent, retrospective cross-sectional study of almost 20,000 long-term care residents of nursing homes aged 65 years and older identified the 20 most common chronic conditions. GERD was the sixth most common disorder in the confined elderly, with 23% prevalence in men and women.<sup>6</sup> In summary, GERD is a prevalent disorder in the elderly, and seems to be associated with more severe and advanced disease in a population that is growing in size in the United States.

## ESOPHAGEAL PHYSIOLOGY AND AGING

Aging of the esophagus has been associated with several important changes in esophageal physiology that predispose to both the prevalence and severity of GERD. These factors are summarized in **Box 1** and **Table 1**.

### *Structural Studies*

In a rodent model, aging impairs the cholinergic nerve cell population in the stomach and intestines.<sup>7</sup> Studies of the animal or human esophagus appear scarce. In a study that evaluated the histology of the Auerbach plexus and esophageal smooth muscle in autopsy material from young and old subjects, the investigators found a significant decrease in ganglion cells per square centimeter ( $P < .05$ ) and a heavier lymphocytic infiltration in comparison with younger counterparts.<sup>8</sup> This situation could potentially produce disorders similar to idiopathic achalasia and diffuse spasm. Pathologic changes seen in the esophagus with aging are similar to changes seen in patients with the more specific spastic esophageal motility disorders.<sup>9</sup>

Hiatal hernias are an important factor in the genesis of GERD, and their presence and size has been noted to partially correlate with the severity of mucosal damage from GERD. For example, hernias of 3 cm or larger may predispose to lower pressures in the lower esophageal sphincter (LES), greater acid exposure, and higher prevalence of erosive esophagitis.<sup>10</sup> Hernias are more common with increasing age, and were noted in 60% of patients older than 60 years.<sup>11</sup>

### *Esophageal Motility Studies*

#### *Lower esophageal sphincter*

There is no clear relationship between basal LES pressure and aging.<sup>12</sup> When acid exposure and LES pressures were compared, LES pressure was lower with more severe acid exposure, but did not correlate with advancing age.<sup>13</sup> An additional study showed increased esophageal acid exposure with advancing age, and that these changes in acid exposure were associated with a decrease in both abdominal LES length and a weakening in esophageal motility.<sup>14</sup> Most studies seem to suggest that

#### **Box 1**

##### **Potential factors that may predispose to GERD in older patients**

Decreased salivary flow and bicarbonate secretion

Weakened and/or disordered esophageal motility

Weakened lower esophageal sphincter pressure

Hiatal hernia

Declining prevalence of *Helicobacter pylori* allows continued acid secretion into old age

Increased rates of obesity

<b>Factor</b>	<b>Mechanism/Notes</b>
Weak UES pressure	Increased risk of aspiration
Decreased sensation	Increased risk of complications and delayed identification of disease
Poor primary and secondary peristalsis	Longer duration of acid exposure
Comorbidities (diabetes, medications, etc)	Increase acid exposure and/or increase severity of damage

LES pressure relates more to acid exposure and hiatal hernia than specifically to age. Transient LES relaxations (tLESR) are an important mechanism in GERD, and the authors are not aware of any studies looking at tLESR in older subjects in comparison with younger counterparts or controls.

### ***Esophageal body***

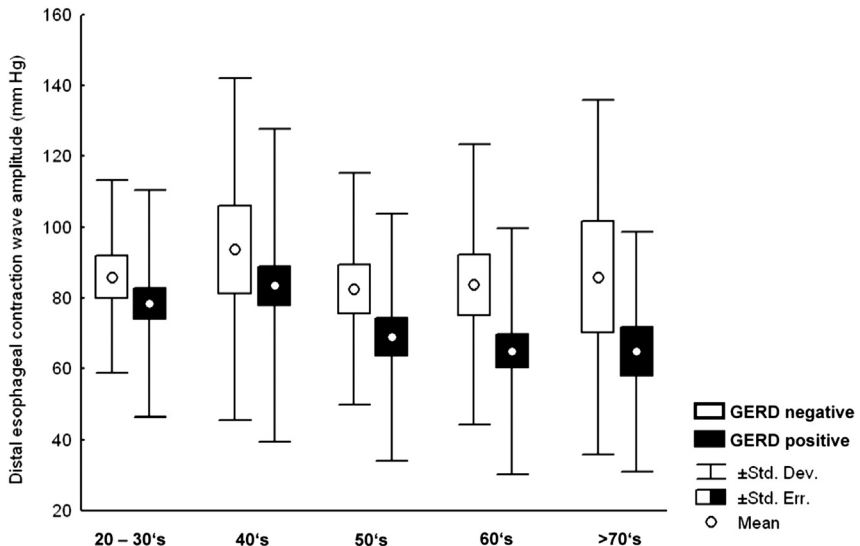
Much still remains to be learned about the effects of aging on esophageal physiology. In 1964, with the use of combined radiographic and esophageal manometric techniques, investigators coined the term presbyesophagus to suggest that elderly patients have a unique array of findings.<sup>15</sup> In 15 patients between 90 and 97 years old, they found evidence of nonpropulsive, often repetitive contractions and tertiary contractions in a pattern resembling esophageal spasm. Unfortunately, this study may have overestimated age-related deterioration because most of the patients were infirm with comorbidities that, by themselves, may explain the esophageal changes. Four were hospitalized patients, 4 had senile dementia, and 10 had evidence of diabetes and stroke or neuropathy.

Hollis and Castell<sup>16</sup> recruited 21 nonhospitalized elderly men (age 70–87 years) without evidence of diabetes, neuropathy, or dementia, and compared their basal and edrophonium-stimulated esophageal motility results with those of 11 men with no history of heartburn or dysphagia (age 19–27, mean 23 years). Their main finding was a decrease in basal esophageal pressures and a marked blunted cholinergic response ( $P < .05$ ) in older patients (especially those >80 years) when compared with younger controls. The investigators concluded that disrupted muscle activity (rather than a neurologic process) was the explanation for the age-related differences. In another study, 10 normal subjects had repeated longitudinal studies over 8 years without evidence of deterioration in esophageal motility, but they were fairly young at the onset of the study (mean age 36, range 30–53 years).<sup>17</sup>

In a database of 562 patients undergoing manometry, 126 were noted to have aperistalsis. Detailed investigations were performed, which explained the aperistalsis in all patients except for a group of 26 elderly (>65 years) subjects. It was concluded that aging might be associated with deterioration of esophageal motility in these patients.<sup>18</sup> In 1979 a group in Barcelona, Spain published a study of 79 volunteers without obvious history of esophageal disease. Esophageal motility testing was done with a water-perfused system. To assess esophageal motility as a function of age, the 79 subjects were divided into 6 age groups ( $\leq 25$  [n = 26], 26–35 [n = 10], 36–45 [n = 10], 46–55 [n = 10], 56–65 [n = 10], >65 years [n = 13]). The results showed that LES pressure, upper esophageal sphincter (UES) pressure, and peristaltic wave amplitude and progression speed decrease with advancing age, whereas contractile wave duration and the proportion of nonperistaltic contractions increase.<sup>19</sup> A Brazilian

study recruited 40 subjects from the community distributed by age (20 aged 20–30, 10 aged 50–60, and 10 aged 70–80 years), and performed esophageal manometry and scintigraphy. The investigators found abnormal peristalsis and impaired esophageal clearance to be more common in older volunteers.<sup>20</sup> In a population of 470 consecutive symptomatic esophageal patients (some with GERD and some with dysphagia and other symptoms referred for esophageal motility at a tertiary center), older patients (>75 years) tended to have more common abnormal motility (68.7%) when compared with their younger (<50 years) counterparts (45.7%).<sup>12</sup>

There are some motility data available from older patients who specifically have GERD. The effects of age on esophageal motility were recently reported in a study of 326 patients with symptoms and objective confirmation of GERD (erosions on esophagogastroduodenoscopy or abnormal pH). Subjects were grouped by decades. Whereas normal motility was observed in 87% of subjects aged 17 to 39 years, only 56% of those older than 70 had a normal study. Older age, but not GERD status, was also associated with lower esophageal amplitude of contraction. No age differences were noted in LES length or resting pressures, although, as expected for GERD subjects, LES resting pressures were lower on comparison with those without GERD (Fig. 1).<sup>21</sup> In an additional study of 349 consecutive patients undergoing motility and pH studies, the authors' group<sup>22</sup> found that when compared with younger subjects (age <40 years), older patients (>65 years) had a significantly lower percentage of normal swallow-induced peristalsis, and that peristaltic failure was associated with increased levels of esophageal acid exposure. These changes in esophageal motility were confirmed in a large (n = 1307) retrospective study.<sup>14</sup> Older GERD subjects had decreased abdominal LES length and esophageal motility. Age was associated with an increase in esophageal acid exposure, but the severity of reflux symptoms decreased with age.



**Fig. 1.** Patients with GERD (GERD positive) were more likely to have lower distal esophageal amplitude, especially in the older age categories. (From Gutschow CA, Leers JM, Schröder W, et al. Effect of aging on esophageal motility in patients with and without GERD. *Ger Med Sci* 2011;9:Doc22.)

### **Upper esophageal sphincter dysfunction**

Although not directly related to the pathophysiology of GERD, GERD-related aspiration into the airways is a potential cause of morbidity and mortality in the older patient.<sup>23</sup> Several studies have also identified several findings in this region of the esophagus. In 1990, a study of 10 elderly volunteers (age >60, range 62–79 years) and 10 younger adults (age <60, range 24–59 years) was completed with solid-state microtransducers. The investigators focused on UES physiology, and found that aging was associated with lower resting UES pressure and delayed UES relaxation, relative to the pharyngeal contraction peak.<sup>24</sup>

In a study of 67 healthy subjects aged 17 to 67 years, older subjects were found to have only marginally lower UES resting pressures but markedly elevated pharyngeal contraction pressures. Increasing age was associated with a reduction in duration of upper esophageal contractions and, for bread swallows, an increase in pharyngo-esophageal wave velocity.<sup>25</sup> An additional, protective mechanism may also be affected with aging. Comparing 9 healthy young ( $26 \pm 2$  years) with 9 older subjects ( $77 \pm 1$  years), Ren and colleagues<sup>26</sup> noted significant differences in UES contractile reflex, showing this reflex to be impaired with age. This mechanism may be important in protecting the airway from aspiration of a refluxed bolus located in the proximal esophagus. Ongoing studies using high-resolution manometry may help to clarify the importance of the UES and proximal, striated muscle esophagus in reflux and other diseases.

### **Sensory Changes**

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Sensory changes in esophageal perception have also been noted, and may explain the concept that older patients often present with more advanced disease, but with symptoms similar to or milder than younger patients. When compared with younger control individuals (mean age 27, range 18–57 years), older subjects 65 years or greater (mean age 72.5, range 65–87 years) showed a decreased sensory perception to esophageal distension.<sup>27</sup> An acid perfusion study found that older patients with GERD were noted to have less severe symptoms and a longer lag time until the appearance of symptoms when compared with younger patients.<sup>28</sup>

### **Other Changes**

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Salivary bicarbonate is important in the neutralization of refluxed acid, and may tend to decrease with aging.<sup>29</sup> The relationship of aging and gastric acid secretion is somewhat complex. Historically it was suggested that older patients experience an age-related decrease in acid secretion, but this was likely related to *Helicobacter pylori* status.<sup>30</sup> Curing *H pylori* infection may actually increase reflux in some patients.<sup>31</sup> Because the prevalence of *H pylori* seems to be decreasing, more patients may retain their ability to secrete acid into old age. This continued acid secretion, when combined with some degree of peristaltic dysfunction, may lead to a greater risk for GERD and its complications. Other factors that have not been well studied in older patients include esophageal mucosa resistance, gastric emptying, and duodenogastric reflux.

Diabetes, Parkinson disease, Alzheimer disease, amyotrophic lateral sclerosis, and many other disorders increase in prevalence with aging, and thus may likely contribute to or are associated with GERD. Medication use is more common in older patients, and medications that may increase the risk of GERD include theophylline, nitrates, calcium antagonists, benzodiazepines, anticholinergics, antidepressants, lidocaine, and prostaglandins.<sup>32</sup> An increase in body weight with age may also predispose to GERD,<sup>33</sup> which is important because our older population is now more likely to be obese than in the past.<sup>34</sup>

## AGE AND GERD PREVALENCE

The physiologic changes noted earlier likely predispose elderly patients to GERD, and an increased prevalence of GERD symptoms in elderly patients has been reported in some, but not all studies. The proportion of patients using antacids who are older than 50 years is greater than in patients younger than 50 (22% vs 9%).<sup>35</sup> On the other hand, in a random sample of 2200 residents of Olmsted County, Minnesota, aged 25 to 74 years, the overall prevalence of heartburn or acid regurgitation at least weekly was 20%, and no significant increase in prevalence occurred with age. The prevalence of heartburn declined with age although regurgitation did not.<sup>1</sup> This finding supports the concept of impaired sensory function with aging. A recent systematic review<sup>36</sup> found 9 population-based studies and 7 clinical studies on age-related prevalence and incidence. No increase in GERD symptom prevalence with age was noted, but aging was associated with more severe patterns of acid reflux and reflux esophagitis; symptoms associated with GERD become less severe and more nonspecific with aging (Fig. 2). The investigators concluded that “the real prevalence of GERD may well increase with age.”<sup>36</sup>

## CLINICAL PRESENTATION

In general, older patients with GERD have symptoms similar to those of younger patients, but complications and severe disease are more common, and include dysphagia, chest pain, and even GERD-related gastrointestinal bleeding. The severity

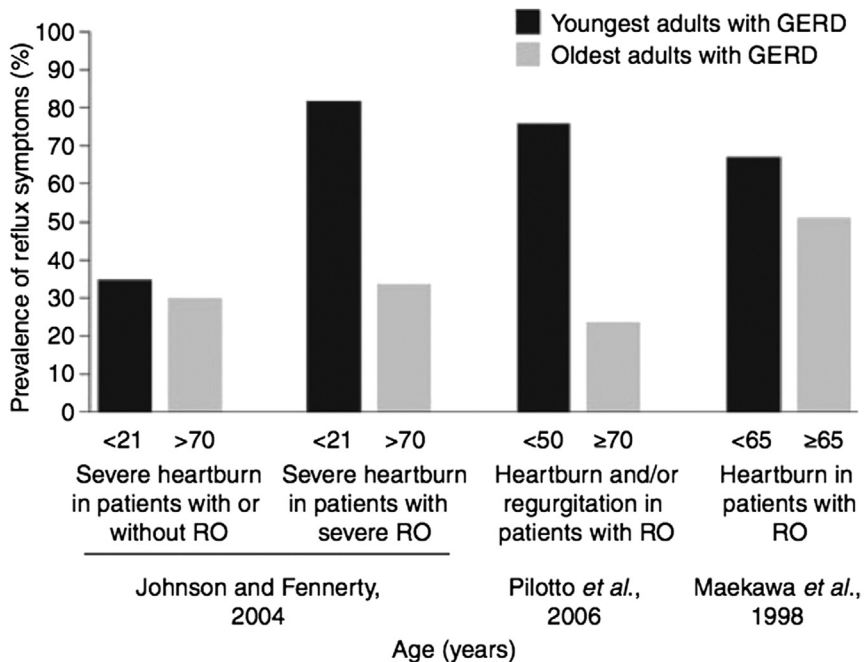
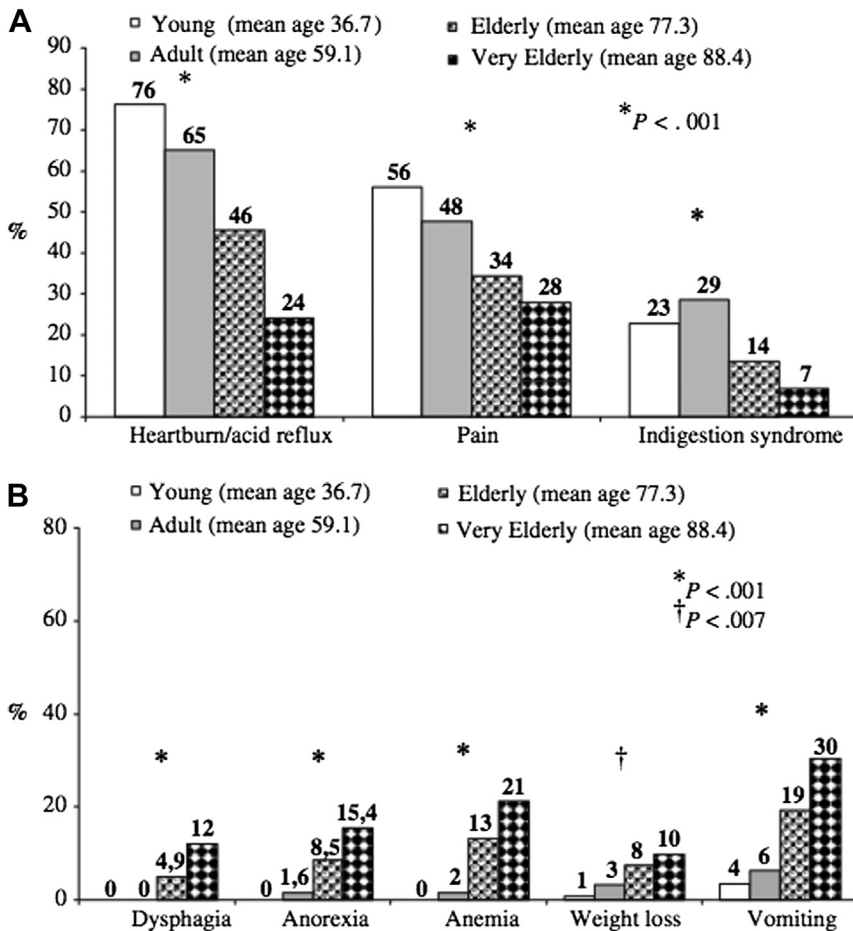


Fig. 2. Three studies in which severe heartburn was less common in older patients with erosive esophagitis (RO). (From Becher A, Dent J. Systematic review: aging and gastroesophageal reflux disease symptoms, esophageal function and reflux esophagitis. *Aliment Pharmacol Ther* 2011;33:450; with permission.)

of symptoms often does not correlate with the degree of esophageal damage and complications. In a study of 195 older patients with a mean age of 74 years, Raiha and colleagues<sup>37</sup> found heartburn to be absent in 50% of patients with esophagitis. Respiratory symptoms, dysphagia, and vomiting were common. Restrictive ventilatory defects<sup>38</sup> and lung parenchymal scars and pleural thickening,<sup>39</sup> in particular, are more common in older patients with increased acid exposure on 24-hour esophageal pH studies than in those with normal results. When symptoms were examined in more than 600 patients with erosive esophagitis, patients older than 65 years had fewer typical symptoms and more anorexia, weight loss, anemia, vomiting, and dysphagia (Fig. 3).<sup>40</sup> Typical symptoms were present in 40% of those older than 65 years, and in 65% of those older than 85. A questionnaire for the evaluation of upper gastrointestinal symptoms in the elderly (UGISQUE) has been developed and validated in elderly subjects with endoscopic diagnosis of reflux esophagitis, peptic



**Fig. 3.** Older patients with erosive esophagitis were less likely to suffer from typical reflux symptoms (A) and more likely to have atypical symptoms (B). (From Pilotto A, Franceschi M, Leandro G, et al. Clinical features of reflux esophagitis in older people: a study of 840 consecutive patients. *J Am Geriatr Soc* 2006;54:1539; with permission.)

ulcer, or erosive gastritis. The elderly patients had significantly higher rates of abdominal pain, reflux symptoms, indigestion syndrome, and bleeding, and also nonspecific symptoms, than subjects without endoscopic lesions.<sup>41</sup> In a retrospective study of almost 12,000 subjects undergoing detailed symptom evaluation and endoscopy,<sup>42</sup> severe esophagitis (Los Angeles grade C or D) became more common with aging while “severe” symptoms became less common (Fig. 4).

### Complications

The risk of complications arising from GERD seems to be higher in older patients. Collen and colleagues<sup>43</sup> found erosive esophagitis in 81% of GERD patients older than 60, compared with 47% in those younger than 60 years. Barrett esophagus was also more common in older patients (25% vs 15%). A recent study from the Veterans Administration found more erosions, ulcers, and strictures in older patients, particularly older, white men.<sup>44</sup> In addition, in persons older than 80 years, esophagitis seems to account for a higher than expected proportion of patients with gastrointestinal bleeding.<sup>45</sup>

The incidence of Barrett esophagus clearly increases with age. Moreover, older patients with Barrett esophagus are less symptomatic than younger patients with Barrett esophagus.<sup>46</sup> Once Barrett is diagnosed in older patients, they usually are entered into a surveillance program. Many investigators have advocated an end to Barrett surveillance at some point as the patient ages, because of the unacceptable outcome of esophagectomy in older patients with high-grade dysplasia or cancer. The advent of less invasive, albeit still experimental approaches to dysplastic Barrett and early-stage adenocarcinoma, such as photodynamic therapy, catheter-based ablation, and localized mucosal resection, has resulted in older patients continuing with surveillance into advanced age. It is important to discuss the goals of Barrett surveillance with all patients. If the patient does not agree to endoscopic or surgical treatment of high-grade dysplasia or cancer, continued surveillance is unreasonable.

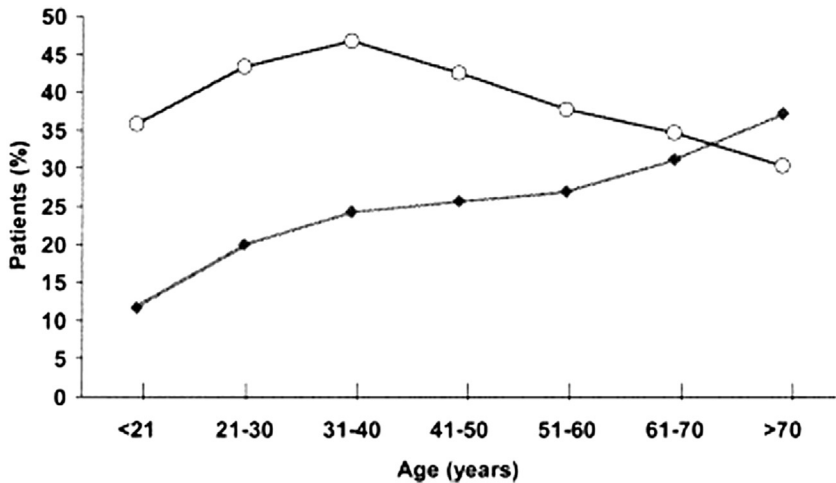


Fig. 4. A large study of almost 12,000 patients found that severe esophagitis (Los Angeles grade C or D) increased with age while severe symptoms tended to decrease. (From Johnson DA, Fennerty MB. Heartburn severity underestimates erosive esophagitis severity in elderly patients with gastroesophageal reflux disease. *Gastroenterology* 2004;126:662; with permission.)



## TREATMENT

### *Medical Therapy*

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Although patients with GERD do not usually secrete more acid in comparison with controls, the treatment of GERD continues to usually involve acid suppression using either proton-pump inhibitors (PPIs) or H<sub>2</sub>-receptor antagonists (H<sub>2</sub>RAs).

PPIs provide the greatest degree of acid suppression and are effective for most patients, regardless of age.<sup>47</sup> Some, but not all studies have suggested that older patients require more acid suppression than younger patients to heal erosive esophagitis.<sup>48</sup> On the other hand, a study comparing pantoprazole with nizatidine or placebo found that the PPI was superior in healing regardless of the age, and there were no age-related differences within each treatment arm.<sup>49</sup> Omeprazole has been available for many years and there have been several, additional PPI-related agents introduced in the past 20 years. Some of these have a slightly longer duration of action, but direct comparisons have required huge studies to find a small difference that may be of questionable clinical significance. Two agents (delayed-release dexlansoprazole and the bicarbonate/omeprazole combination) do not require administration before meals, which may be an advantage in some older patients.<sup>50,51</sup> The bicarbonate/omeprazole combination does contain a fair amount of sodium, which could produce issues in older patients with hypertension or fluid retention.

When using PPIs, particularly in older patients, several issues need to be taken into consideration. Plasma clearance of PPIs decreases with age, but no reduction in the dose of PPIs is necessary in older patients, even those with impaired renal or hepatic function.<sup>52</sup> Omeprazole and lansoprazole are metabolized by hepatic cytochrome P450 and may affect the metabolism of other drugs, but the effects been shown to be clinically insignificant with most agents.<sup>53</sup> Caution is still reasonable in older patients on multiple medications with similar metabolism, particularly if 1 of those medications has a narrow therapeutic window (eg, warfarin, phenytoin, diazepam, carbamazepine). Clopidogrel is a prodrug that is metabolized to its active form by the same cytochromes that metabolize most PPIs, and caution is advised when giving these medications together because in some patients combined therapy may decrease the efficacy of clopidogrel and lead to adverse vascular events.<sup>54</sup> This interaction has been extensively debated, and the most recently published guidelines for the treatment of GERD downplayed such an association.<sup>55</sup>

There may also be nutritional, metabolic, and infectious consequences of PPI therapy. Long-term use of a PPI may lead to a reduction in protein-bound vitamin B<sub>12</sub> absorption,<sup>56</sup> but is unlikely to cause clinical B<sub>12</sub> deficiency. Significant fat or carbohydrate malabsorption resulting from bacterial overgrowth is not likely with these agents.<sup>57</sup> The effect of PPI therapy on calcium absorption and subsequent bone density has become a topic of concern, especially among older patients, given a 2006 report suggesting an association between PPI therapy and hip fractures.<sup>58</sup> Other possible, but infrequent associations that should be remembered include an increased risk of community-acquired pneumonia and *Clostridium difficile* infection.<sup>59</sup> Another rare complication of PPI therapy is interstitial nephritis, which seems to be more common in older patients, with a mean age in one series of 78 years.<sup>60</sup> Finally, magnesium levels may also decrease when patients take PPIs for long periods.<sup>61</sup> Specific studies in older patients are lacking, but it would be easy to assume that these issues would be at least as common and perhaps more common in older patients.

Although PPIs have become the treatment of choice for GERD, some patients may be managed with H<sub>2</sub>RAs. For example, in maintenance trials PPIs are usually superior, but up to 50% of patients can be successfully stepped down from PPI therapy. In older

patients, caution is required in using higher than standard doses of H2RAs. Changes in mental status have been described in older patients, particularly those with renal and liver dysfunction, with both cimetidine and ranitidine.<sup>62</sup> Cimetidine in particular may affect the metabolism of drugs by the hepatic cytochrome P450 system, including warfarin, theophylline, and benzodiazepines. In patients with renal insufficiency, the doses of all H2RAs may need to be reduced.<sup>63</sup> A study in African Americans suggested that older patients who were cognitively intact at baseline were more likely to develop cognitive impairment while on continuous H2RA treatment in comparison with nonusers.<sup>64</sup> Some patients, particularly those with infrequent symptoms, can be managed with as-needed H2RA or antacids. It is important to remember that antacids must be used with caution in the elderly because of the potential risk of salt overload, constipation, diarrhea, and the possible interference with the absorption of other drugs.

The best therapy for GERD would prevent reflux without necessarily decreasing acid secretion using a motility agent. Unfortunately, the lack of efficacy and high rate of side effects with these agents makes the routine use of promotility agents for the treatment of GERD in this (or any) population problematic and often inappropriate. Metoclopramide is a dopamine antagonist that increases LES pressure and improves gastric emptying,<sup>65</sup> but must be used with great caution in older patients because of side effects in up to one-third of patients, including muscle tremors, spasms, agitation, anxiety, insomnia, drowsiness, and even frank confusion or tardive dyskinesia.<sup>66</sup> This problem has led regulatory agencies in the United States to place a black-box warning on metoclopramide. Domperidone is a similar agent, but with little to no central nervous system (CNS) interactions, although it has not been proved to be very effective in GERD and is not routinely available in the United States. Cisapride had some degree of efficacy in mild GERD, but can cause cardiac arrhythmias and has been removed from the market in most, if not all countries. Bethanechol, which increases resting LES pressure, is rarely used and is associated with various side effects, including urinary frequency, abdominal pain, blurred vision, and worsening glaucoma, all of which are more likely in an older patient. Agents designed to function like bethanechol, but with fewer CNS side effects, have thus far not reached the market because of poor efficacy, side effects, or both.

It is clear that acid-suppressing agents are extensively used throughout the world, and there are data suggesting substantial overuse and inappropriate use. For example, in a study looking at preadmission and postadmission medication use in a group of older, hospitalized patients,<sup>67</sup> PPIs were listed in 40% of admitted patients and no accepted indication was identifiable in 66% of these patients. PPIs (and any medication) should be discontinued when there is no indication for their use, particularly when it is not having an appreciable effect on the symptoms being treated.

### ***Surgical Therapy***

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Surgery can be performed successfully in older patients who are reasonable operative risks, but should be avoided in patients with concomitant medical problems that make such surgery hazardous. When a group of surgical patients older than 70 years was compared with a group younger than 60, preoperative and postoperative reflux symptom scores were lower in the older patients, but all other outcomes and complications were similar between the two groups (with the exception of postoperative dysphagia, which was actually less common in the older patients).<sup>68</sup> An additional series also reported similar outcomes, with the only significant findings being more atypical symptoms and more impaired preoperative motility in the older patients.<sup>69</sup> Large, paraesophageal hernias are an additional surgical problem in the older patient with

GERD, although most investigators suggest that these only be repaired when they are symptomatic or producing complications. Laparoscopic repair of large and/or complicated hernias is technically challenging and is also associated with higher complication and recurrence rates, but can be successful even in very old patients.<sup>70</sup> Regardless of the type of hernia (standard hiatal, paraesophageal, or mixed), older patients are at risk for weak peristalsis and postoperative dysphagia. The authors continue to use the preoperative esophageal motility study to guide surgery, particularly in older patients. There are several new approaches to GERD (both endoscopic and laparoscopic) in development, but there are no data from older patients.

## SUMMARY

Older patients have changes in their esophageal physiology that predispose to more severe forms of GERD, and also may mask symptoms and delay or prevent health care providers from recognizing esophageal damage from refluxed acid, including esophagitis and Barrett esophagus. Older patients are at increased risk for GERD complications and also have frequent atypical presentations. Comorbidities make the diagnosis and treatment of GERD more challenging in aged patients. The treatment goals and approach are similar for older and younger patients. Therapy can include chronic PPI therapy and antireflux surgery in selected patients, but some can be managed with lifestyle changes and less aggressive therapy. Older patients may be at increased risk of complications from reflux therapy, whether medical or surgical.

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