Conservative Management of GERD: A Case Study

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Gastroesophageal reflux disease (GERD) is a major problem in primary care. More than 25% of the population experience GERD symptoms, and nonerosive forms of the disease are common. Conservative management is recommended. This review and case study presents conservative treatment options from the updated guidelines for the adult patient with GERD.

A relapsing and often chronic process, gastroesophageal reflux disease (GERD) has become a common primary care issue. The presentation and severity of GERD varies with an estimated 25% to 35% of the U.S. population affected (Richter, 1996; Scott & Geltot, 1999). Heartburn is a common symptom of the disease and frequently, patients self-treat for lengthy periods of time prior to seeing a health care provider. However, patients with more unusual manifestations of the disorder are a challenge to diagnose and manage. A significant advance in assessing and treating GERD is identifying nonerosive reflux disease (NERD). Recent studies show that more than 50% of patients presenting in primary care with more than 2 weekly episodes of heartburn have the nonerosive form of GERD (Carlsson et al., 1998). This case study demonstrates how recently updated guidelines can be used to improve the care of adults with GERD.

Pathophysiology

A multi-faceted process, GERD is a prevalent problem that has the potential to adversely affect sufferers’ quality of life. Early recognition of GERD is often difficult because of individual variations in symptom presentation. Advanced practice nurses (APNs) must recognize these signs and symptoms in order to initiate the appropriate tests and treatment.

GERD is a complex disorder caused by several factors. In this disease, reflux of gastric acid occurs into the esophagus. Small amounts of reflux occur normally in a large population of individuals, but in those who have severe reflux, damage to the mucosal lining of the esophagus can occur (Reynolds, 1996). Several factors of esophageal dysfunction can cause this reflux esophagitis to occur.

Four factors are associated with the pathogenesis of GERD. These are:

- Transient relaxation of the lower esophageal sphincter (LES).
- Consistently lower pressure of the sphincter.
- Slowed or delayed gastric emptying.
- Inability or delay in the clearing of esophageal refluxate.

Note: The use of the term “advanced practice nurse” (APN) was used in this article to represent nurses recognized by their state licensing organization as practitioners or clinical specialists authorized to perform advanced nursing practice.
The most common factor in the event of reflux is transient relaxation of the LES.

Lower resting pressures of the sphincter muscle may be a cause or a consequence of esophagitis. In patients with chronic symptoms, inflammation can cause an inability of the muscle to close completely (Bolton, 1999). The presence of reduced LES pressure and hiatal hernia leads to a large degree of reflux.

The extent of mucosal injury seen in GERD is determined by the time that the refluxate is in contact with the mucosal lining of the esophagus as well as the degree of acidity of the reflux material (Bolton, 1999; Claussen, 1999).

To select the best treatment approach, the symptoms must be assessed and evaluated. Working with the diaphragm, the LES normally creates a barricade against any gastric secretions from entering the esophagus. The reason for the relaxation of the LES is unclear despite considerable research. Studies examining the many medications and foods linked to causing a decrease in LES tone have not demonstrated their association with LES relaxation events (Szarka & Locke, 1999). Yet, this event is attributed to being the most common cause of GERD symptoms.

**Symptoms**

Heartburn (pyrosis) is the chief symptom seen in patients with GERD. Usually, patients describe their discomfort as a burning behind the sternum associated with meals, position, sleep, or exercise (Fletcher, 1999). This sensation most commonly occurs within 1 hour of food ingestion and with the largest meal of the day (Bolton, 1999). Possible symptoms include: belching, dysphagia,odynophagia (pain on swallowing) with regurgitation of gastric contents into the mouth associated with water brash (sudden occurrence of fluid into the mouth caused by increased salivary production secondary to the presence of acid in the esophagus) (Richter, 1996), and early satiation. Several non-GI related symptoms can also be present, including: sore throat, cough, bronchospasms, atypical chest pain, hoarseness, and asthma exacerbation (Claussen, 1999; Mujica & Rao, 1999). Elderly patients present significantly more often with epigastic pain, weight loss, and anemia than do younger adults. The primary symptoms found in elderly patients with GERD are dysphagia, vomiting, respiratory problems, chronic cough, hoarseness, and weeping. All of these symptoms lead to restrictive respiratory difficulties (Thjodleifsson & Jonsson, 2001).

Asthmatic patients may present with nocturnal cough and asthma exacerbation and no history of GERD. There is evidence that esophageal irritation and/or aspiration of gastric secretions into the respiratory tree can stimulate asthmatic symptoms (Katz, 1999; Mujica & Rao, 1999). The micro-aspiration of acid and vagally mediated bronchospasm triggered by intra-esophageal acid exposure have also been implicated in GERD-associated asthma (Wu, 1994).

**Diagnosis**

Practitioners must evaluate the wide range of GERD in order to diagnose the disorder. Cardiac chest pain, infectious esophagitis, chemical esophagitis, peptic ulcer disease, and esophageal tumor must all be ruled out (Dunn, 1998). Patients with mild reflux symptoms such as heartburn can be diagnosed simply based on successful treatment with lifestyle modifications and over-the-counter (OTC) doses of antacids with or without H2 receptor antagonists. If the previous treatment fails and/or atypical symptoms such as dysphagia or chest pain are present, further testing should be done to reach a formative diagnosis of GERD with or without Barrett’s esophagus.

Barrett’s esophagus represents a condition where columnar epithelium is found in the esophagus instead of the normal stratified squamous epithelium. This change occurs as a result of continued presence of acid reflux in the esophagus. These columnar epithelium represent a premalignant condition that can lead to esophageal adenocarcinoma (Bolton, 1999).

A barium swallow is the easiest, least costly test to order. However, it is possible for patients to continue to have symptomatic GERD and “normal” barium swallows. Nevertheless, the barium swallow is the most cost-effective screening study to rule out complications and to evaluate patients with dysphagia (Katz, 1999). However, endoscopy is the diagnostic procedure of choice (Katz, 1999).

Esophageal endoscopy is the gold standard for diagnosing reflux esophagitis and other complications of GERD. It is highly accurate and can eliminate the need for further testing (Claussen, 1999; Szarka & Locke, 1999). If endoscopy is not definitive, 24-hour ambulatory pH monitoring can be performed. This test is necessary to confirm the diagnosis of complicated GERD, especially if corrective surgery is under consideration.

Complicated GERD has several warning signs. These signs are dysphagia, GI bleeding, weight loss while on a treatment regimen, choking with shortness of breath or accompanied hoarseness, and chest pain. Chest pain must be evaluated for cardiac origin immediately. Once the pain is determined to be of noncardiac origin, additional diagnostic testing can be undertaken (DeVault, Castell, & The Practice Parameters Committee, 1999).
Management

Once the diagnosis of GERD is made, a number of treatment options must be considered. Since GERD generally is chronic and relapsing, most patients require a long-term management plan designed to alleviate symptoms and prevent complications (Szarka & Locke, 1999). In GERD, the treatment goals are to relieve acid-related symptoms, heal the esophagitis, and prevent complications such as strictures and Barrett’s esophagus (Claussen, 1999; Holmes, 2000). In cases where long-standing symptoms are present and the standard therapies have been ongoing without relief, a referral to a gastroenterologist is highly recommended. Then, further evaluation of the symptoms and endoscopic screening for Barrett’s esophagus is usually conducted (DeVault et al., 1999).

Once the diagnosis of GERD is confirmed, providers and patients work together to develop a treatment plan, which includes patient education and support.

Case Presentation

The following case study helps illustrate how APNs can diagnose and treat GERD.

Mr. Thomas Hill arrived at the primary care office accompanied by his 45-year-old wife, Mary. The following information was obtained through combining the general patient information sheet, which was completed prior to coming into the office, and the brief initial interview taken by the office nurse.

Medical history. Mr. Hill’s medical history included mild persistent asthma, treated with daily bronchodilators and inhaled corticosteroids. Otherwise, his medical history was noncontributory.

Social history. The patient’s social history included a full-time job as a bartender. He has been married to Mary for 20 years and they have two teenagers. He does not smoke but admits to drinking two beers a day on the 5 days of the week that he works. He denies using street drugs, herbal preparations, and alternative therapies. He enjoys jogging two to three miles per day, 3 to 4 times per week, in the morning. His hobbies include woodworking at least one evening a week, and golfing with friends about once a week.

Nutritional history. Mr. Hill’s diet history reveals that most of his food consumption occurs during the evening hours while at work. These evening meals are hastily eaten due to work responsibilities. He has a tendency to skip breakfast and infrequently eats lunch, but does snack at irregular times during the day. Most of his snacks are energy bars with or without fresh fruit.

Sleep patterns. The patient sleeps about 7 hours a night with one interruption to toilet. Some nights he awakens with a burning sensation in the back of his throat. When this occurs he adds one more pillow, drinks some water, and returns to sleep.

Subjective data. Mr. Thomas Hill is a 47-year-old white male presenting with complaints of substernal pain with a burning feeling for the last month to 6 weeks. He states he has this burning about 1 hour after he eats, accompanied by frequent belching. He wakes up with a sore throat and sour taste in his mouth.

Objective data. Objective findings are contained within the physical examination. Review the findings in Table 1, for information on Mr. Hill’s examination.

Assessment. (1) GERD, (2) Mild persistent asthma.

Treatment Plan Introduction

The following three-phase plan provides APNs with guidelines for treating patients with mild GERD, such as Mr. Hill. Because lifestyle modification is the first and perhaps most important intervention leading to the successful management of GERD, it should be incorporated into all treatment phases (Scott & Gelhot, 1999).

Patients and providers must agree mutually to a treatment plan in order to achieve successful outcomes. After explaining thoroughly each treatment option, the APN can determine if the patient will view the treatment plan as workable. Nonsurgical options are organized into Phases I and II. Surgical options are given the designation of Phase III. The presentation of conservative treatment does not include a discussion of surgical options (Phase III).

Treatment Plan Phase I: Lifestyle Modifications and Nonpharmacologic Measures

Phase I is considered conservative therapy to treat chronic GERD by reducing the frequency and duration of episodes of reflux. Even when pharmacologic measures are added, patients should continue to incorporate these conservative changes into their daily lifestyle. Suggested lifestyle modifications include areas such as daily habits, eating patterns, sleeping arrangements, and the use of OTC antacids. These changes have the potential to correct dysfunctions in salivation, LES pressure, and motility disorders. The following modification recommendations are suggested. Rationale is presented in parentheses.

1. Eat small meals (large meals decrease the LES pressure).
2. Loss of excess weight (pressure and motility disorders arise with increased weight).
3. Stop smoking (decreases salivation).
4. Decrease consumption of caffeine, fatty foods, chocolate, onions, citrus fruit and juices,
Table 1.
Physical Examination Findings

Upon examination, the primary care provider finds the following:

**General appearance:** Well-dressed, alert, white male height appropriate to weight in NAD.

**VS:** Temp: 98.2, Pulse: 62, Resp: 16 and even, B/P: 134/72.

**HEENT:** \*Head: Normocephalic, atraumatic; Ears: TM's intact; positive light reflex and bony prominences evident; hearing normal by whisper test; Eyes: Vision 20/20; PERRLA, EOMs are full and without nystagmus, fundoscopic exam is noncontributory; Nose: midline, mucosa is pale and boggy, nonerythematous; Throat and mouth: gums pink, moist without lesions, teeth in good alignment and in good repair, pharynx slightly erythematous without lesions, tonsils are 1+ bilaterally; uvula midline; slightly sour mouth odor.

**Neck:** Erect, trachea midline; thyroid nonenlarged. No JVD. Carotids 2+ bilaterally. Full ROM. Posterior, anterior cervical and supraclavicular lymph nodes nonpalpable.

**Chest:** Normal skin and thoracic configuration. Normal symmetrical pattern. No CVA tenderness.

**Lungs:** Respiration are 16 even, regular, and nonlabored. Bilateral excursion of 4 cm. Tactile fremitus is even bilaterally throughout. Resonant sounds throughout. Breath sounds vesicular throughout. Occasional expiratory wheezes in the bronchial areas.

**Heart:** RRR. Negative S3 or S4. No murmur or rubs.

**Abdomen:** Smooth, flat, without pulsations. Bowel sound present in all four quadrants. No bruits or hums noted. Tympanic sounds over epigastrium; all other areas dull to percussion. No organomegaly. No masses. Positive tenderness in the mid-epigastric area to deep palpation. Negative Murphy's sign. No inguinal herniations or nodes palpated.

**Rectal:** No hemorrhoids noted, sphincter tone intact, walls smooth, stool for guaiac negative.

**Other:** Genitals, extremities, and/or neurologic signs are noncontributory.

peppermint, vinegar, tomatoes, hot spices, and spearmint (stimulating sources).

5. **Elevate the head of the bed six inches** (reduces potential for reflux in a supine position).

6. **Avoid tight-fitting clothing** (permits digestion to continue without an external obstruction).

7. **Avoid exercise and lying down immediately after meals** (causes stress reflux).

8. **Avoid medications that decrease the LES pressure** (Bolton, 1999; Clausen, 1999; Mujica & Rao, 1999). Review Table 2 for a comparison of medications and foodstuffs that contribute to GERD symptoms.

**Antacid therapy.** Heartburn sufferers have long used antacids to relieve burning sensations. These readily available OTC preparations have been identified with long-lasting elevations of pH in the esophagus. When suggesting antacids, care must be taken to list those preparations that best address the symptoms of any concomitant gastrointestinal problems (Decktor et al., 1992). See Table 3 for differences among typical antacid preparations.

Lifestyle modifications with antacids should be followed for several weeks prior to considering additional forms of therapy. If the patient is still having symptoms with an adverse impact on quality of life, the APN needs to move to the next phase of treatment.

**Treatment Plan Phase II: Pharmacologic Interventions**

Phase II includes the addition of proton pump inhibitors (PPI). These drugs are the most effective pharmacologic agents for treating GERD (Katz, 1998). Studies have shown them to be more effective than other therapies in controlling acid and in preventing the recurrence of erosive esophagitis (Katz, 1998). In patients with severe esophagitis, or complications that can include Barrett's esophagus, therapy with PPIs should be initiated immediately (Fass et al., 1997). Some of the most common PPIs are rabeprazole, omeprazole, esomeprazole, and lansoprazole.

According to the newest guidelines (DeVault et al., 1999), histamine-receptor antagonists can be added to the treatment. Until these guidelines were released, histamine-receptor antagonists had been the main treatment for GERD since 1970. These drugs act by inhibiting gastric acid secretion without affecting LES pressure or esophageal clearance (DeVault et al., 1999). The four available drugs of this class are cimetidine, ranitidine, famotidine, and nizatidine. They are equal in efficacy when used in equivalent doses. These drugs are usually well tolerated in the elderly (Katz,
Table 2. Comparison of Medications and Foodstuffs and GERD Symptoms

<table>
<thead>
<tr>
<th>Medications/Food</th>
<th>Relaxation of LES</th>
<th>Hyposalivation</th>
<th>Mucosal Irritant</th>
<th>Delayed Gastric Emptying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha adrenergic blocker</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta adrenergic blocker</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barbiturates</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticholinergics</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antihistamines</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Theophylline</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Calcium channel blockers</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Narcotics</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Progestin/Estrogen</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspirin</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Transdermal nicotine</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrus fruits</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Tomatoes</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vinegar</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Spicy foods</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chocolate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mint (peppermint, spearmint)</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Garlic</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Fatty foods</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Alcoholic beverages</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
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Table 3. Comparison of Antacids

<table>
<thead>
<tr>
<th>Name of Antacid</th>
<th>Acid Neutralizing Capacity (mEq/5 ml)</th>
<th>Aluminum Content</th>
<th>Magnesium Content</th>
<th>Simethicone Content</th>
<th>Sodium Content</th>
<th>Other Content</th>
</tr>
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<tbody>
<tr>
<td>Amphojel</td>
<td>10</td>
<td>320</td>
<td>-</td>
<td>-</td>
<td>2.3</td>
<td>-</td>
</tr>
<tr>
<td>Basaljel</td>
<td>12</td>
<td>-</td>
<td>200</td>
<td>-</td>
<td>2.9</td>
<td>Al(OH)Co3</td>
</tr>
<tr>
<td>DiGel</td>
<td>-</td>
<td>200</td>
<td>200</td>
<td>20</td>
<td>&lt; 5</td>
<td>-</td>
</tr>
<tr>
<td>Gaviscon</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gelusil</td>
<td>12</td>
<td>200</td>
<td>200</td>
<td>25</td>
<td>0.7</td>
<td>-</td>
</tr>
<tr>
<td>Gelusil II</td>
<td>24</td>
<td>400</td>
<td>400</td>
<td>30</td>
<td>1.3</td>
<td>-</td>
</tr>
<tr>
<td>Maalox</td>
<td>15</td>
<td>225</td>
<td>200</td>
<td>-</td>
<td>1.4</td>
<td>-</td>
</tr>
<tr>
<td>Maalox (concentrate)</td>
<td>27</td>
<td>600</td>
<td>300</td>
<td>-</td>
<td>0.8</td>
<td>-</td>
</tr>
<tr>
<td>Milk of Magnesia</td>
<td>14</td>
<td>-</td>
<td>390</td>
<td>-</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>Mylanta II</td>
<td>25</td>
<td>400</td>
<td>400</td>
<td>40</td>
<td>1.1</td>
<td>-</td>
</tr>
<tr>
<td>Riopan</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>&lt;0.1</td>
<td>Magaldrate 540</td>
</tr>
<tr>
<td>Riopan Plus</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>&lt;0.1</td>
<td>Magaldrate 540</td>
</tr>
<tr>
<td>Riopan XS (extra strength)</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.3</td>
<td>Magaldrate 1080</td>
</tr>
</tbody>
</table>


1998). Response to the histamine-receptor antagonists depends on the dose, duration of therapy, and severity of disease. Fifty to 75% of symptomatic patients will respond with partial or complete resolution of symptoms when treated with the addition of histamine-receptor antagonists (Youngkin, Sawin, Kissinger, & Israel, 1999).

Prokinetic drugs have also been used to treat GERD. Prokinetic drugs tighten the LES muscles and thus relieve symptoms of GERD such as belching, bloating, or regurgitation. The effects produced by these drugs, however, appear to be limited (Fass et al., 1997). Cisapride has recently been removed from the market with metoclopramide remaining in this classification.

Herbal therapies for symptoms of heartburn and reflux include comfrey, Iceland moss, Irish moss, mallow, meadowsweet, and slippery elm. Practitioners should be familiar with herbal remedies on the market. Since they are used by many patients, these agents should be evaluated for potential interaction with other drugs and safety before inclusion into patient care plans (Herb-Lore.com, 2000).

**Implementing the Treatment Plan**

Mr. Hill agreed to try several lifestyle strategies. He began an alternative eating pattern of evenly spaced meals (three per day) and allowing time for more leisurely dining at work. He was given written materials advising him to avoid or decrease his intake of caffeine, fatty and spicy foods, and peppermint. Initial patient-directed therapy with antacids and OTC acid suppressants were discussed with followup checks and additional patient teaching as needed. He was instructed to report any of
the complication warning signs to his health care provider (DeVault et al., 1999).

Mr. Hill agreed to elevate the head of his bed six inches to prevent reflux in the recumbent position. He was also instructed to avoid lying down or exercising right after meals. Counseling included information on the association of GERD to Mr. Hill’s asthma exacerbation. Knowing that intrinsic asthma is strongly associated with gastroesophageal reflux was important information for Mr. Hill (Mujica & Rao, 1999).

Prognosis

When managed appropriately, patients with GERD can experience reduced discomfort and improved quality of life. In one study, the long-term outcomes of medical versus surgical treatment for GERD were compared. This investigation concluded that antireflux surgery should not be performed unless patients recognize that they will need to take antisecretory medications after the procedure. Patients treated conservatively as well as those with surgical interventions continued to need medications over a 10-year period (Spechler et al., 2001).

Despite promising advances in treatment and outcomes, GERD has a significant effect on patients’ quality of life. Most health care providers and the public in general do not understand the distress caused by common symptoms. GERD can be associated with severe and potentially lifelong symptoms leading to a marked reduction in normal function, well-being, and overall quality of life. A recent study, using a patient self-rating scale, found that those patients with GERD had a reduced feeling of well-being and reduced quality of life when compared to patients with severe angina pectoris. These results did not differ for patients with or without esophagitis (Dent et al., 1996). Clearly, further research is needed to improve pharmacologic and lifestyle management strategies.

Conclusion

Lifestyle modifications are the first line of conservative management in patients with GERD. In conjunction with these interventions, antacids can improve symptom management. Additional medications can be used if the first line conservative treatment with antacid fails. The use of combination drug therapy is not indicated in most patients with GERD; however, it can be initiated in patients presenting with more complex cases. The successful treatment of GERD depends upon patients developing with their APN and other providers a mutually agreed upon treatment regimen. Patients’ progress should be evaluated regularly. Practitioners must remember that because many prescription medications used to treat GERD are expensive, patients’ adherence to the regimen is often a problem due to financial constraints. These issues should be discussed openly and frankly. Patients should be seen within 4 weeks of diagnosis and initial treatment. GERD patients should be followed closely since this condition is associated with high relapse and recurrence rates.

With thorough assessments, and an understanding of the patient’s goals, conservative treatment of GERD should provide patients like Mr. Hill with symptom relief and an improved quality of life. Setting mutually agreed upon goals, providing information on GERD, and planning for followup visits to evaluate the success of the treatment plan is essential for conservative management of this condition. ■

References


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**Answer/Evaluation Form:**

**Conservative Management of GERD: A Case Study**

*This test may be copied for use by others.*

**COMPLETE THE FOLLOWING:**

Name: ____________________________
Address: ____________________________
City: ___________ State: ___________ Zip: ___________
Preferred telephone: (Home) ___________ (Work) ___________
State where licensed and license number: _______________________
AMSN Member Expiration Date: _______________________
Registration fee: AMSN/ISONG Member: $10.00
Nonmember: $13.00

**Answer Form:**

1. Name one new detail (item, issue, or phenomenon) that you learned by completing this activity.

   _______________________________________________________
   _______________________________________________________
   _______________________________________________________  

2. How will you apply the information from this learning activity to your practice?
   a. Patient education.
   b. Staff education.
   c. Improve my patient care.
   d. In my educational course work.
   e. Other: Please describe. ____________________________

**Evaluation**

<table>
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<tr>
<th>The offering met the stated objectives.</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
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</thead>
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<tr>
<td>1. Describe the pathophysiology, symptoms, and diagnosis of GERD.</td>
<td>1 2 3 4 5</td>
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</tr>
<tr>
<td>2. List management and treatment options for GERD.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>3. Discuss the role of the advanced practice nurse in diagnosing and treating GERD.</td>
<td>1 2 3 4 5</td>
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<tr>
<td>4. The material was new for me.</td>
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<td>5. Time required to complete reading assignment and posttest: Hours</td>
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**Comments**

_____________________________________________________
_____________________________________________________
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**Objectives**

This educational activity is designed for nurses and other health care professionals who care for and educate patients regarding gastroesophageal reflux disease (GERD). The evaluation that follows is designed to test your achievement of the following educational objectives. After reading this article, you will be able to:

1. Describe the pathophysiology, symptoms, and diagnosis of GERD.
2. List management and treatment options for GERD.
3. Discuss the role of the advanced practice nurse in diagnosing and treating GERD.

**Posttest Instructions**

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