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Brenda R. Collins

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Efficacy of Non-pharmacological interventions in Gastro-Esophageal Reflux Disease

Management

Brenda R. Collins

University of North Dakota

PERMISSION

Title: Non-pharmacological interventions in management of GERD

Department Nursing

Degree Master of Science

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Abstract

Gastro-Esophageal Reflux Disease, also known as GERD, currently has a prevalence of 10-20% in the Western World with an upward trend increasing exponentially. In the United States, GERD is the most common diagnosis of all presenting gastrointestinal (GI) related complaints and accounts for about four percent of all visits in family practice. Pharmacological interventions generally include a Proton Pump Inhibitor (PPI) for first-line treatment. PPI's have proven to be a staple in management of GERD, accounting for billions of dollars spent on this class of medication.

Even though PPI's are considered first-line pharmacological interventions, ideally, lifestyle modifications should be initially advised to decreased poly-pharmacy among all individuals. Lifestyle modifications have been observed to decrease or resolve symptoms without any adverse effects. Non-pharmacological interventions are appropriate when GERD symptoms are intermittent and/or mild.

This paper will summarize an actual case of GERD which was presented in the primary care clinic. The purpose of this literature review is to address the efficacy of non-pharmacological interventions which could be incorporated with transient episodes of GERD. Numerous lifestyle, diet and behavior modifications are recommended, but within this paper, will address the most efficient and productive changes which could be incorporated with most GERD patients.

Background

Gastro-Esophageal Reflux Disease (GERD) is becoming a more common occurrence in the primary care setting. Gastro-esophageal related expenses are in excess of 10 billion dollars annually and account for numerous office visits with primary care providers and/or emergency room visits (Patrick, 2011). Gastro-esophageal reflux disease, with heartburn being the main symptom, is verbalized as a symptom by approximately 44% of the US adult population monthly. Seven percent of patients experience heartburn daily and 14% weekly (Mizyed, Fass, and Fass, 2009). Unfortunately, these percentages do not reflect individuals who self-medicate with over-the-counter remedies and so never report that they even have symptoms. Individuals who suffer with heartburn, "sour stomach" or regurgitation will attribute these symptoms with diet, stress and possible other triggers. Medicinal interventions are not always warranted since GERD symptoms are often transient in relation to certain triggers. After long term utilization of over-the-counter remedies, individuals often seek medical treatment in order to curtail GERD symptoms and find relief.

The most common presentation of GERD consists of: heartburn, regurgitation along with difficulty swallowing (Freidenberg et.al. 2008). Gastro-Esophageal Reflux Disease may produce symptoms similar to chronic sinusitis, posterior laryngitis, cough, nocturnal choking, asthma and dental erosions (Patrick, 2011). Unexplained sleep disturbances are attributed to angina-like pain radiating to the back, neck, jaw or arm which can also be GERD related. A thorough history is imperative to get an accurate diagnosis. A positive history of heartburn and regurgitation can lead to the practitioner to a presumptive diagnosis of GERD (Katz, Gerson, and Vela, 2013).

Lifestyle modifications should be first-line therapy for all patients with Gastro-esophageal reflux disease, but are often overlooked (Kaltenbach, and et. al. 2006). Mild GERD

symptoms can be managed empirically with the “step-up approach” which initially begins with diet and life-style modifications which will be addressed in the literature review (Vemulapalli, 2008). Research has demonstrated how behavior modifications can influence the pattern of mild and/or intermittent GERD like symptoms. Recommendations of lifestyle interventions are not always warranted but are applicable when specified triggers can be identified.

Case Report

A 65 year old male presents to the clinic for assessment of a recurrent, dry cough which has persisted for approximately two months ago. Initially he was treated for bronchitis with inhalers without any relief of respiratory symptoms. His history reveals no recent upper respiratory infections or illnesses. He verbalizes that the cough is intermittent and is more prominent at night while sleeping, and is not relieved with any over-the-counter products. His current prescriptions include an anti-hypertensive of Lisinopril 20 mg PO daily, which he has been actively utilizing over the last year. He verbalizes no cough with initiation of Lisinopril. He verbalizes postprandial heartburn and takes antacids on a daily basis with fair relief. He states that the cough and heartburn are interrupting his sleeping pattern which causes an increased fatigue and stress level.

The patient has a diagnosis of hypertension, without any other surgical or medical history noted. Family history is non-contributory to current illness. He is married and works as an independent general contractor. He is a former smoker who quit many years ago. He denies usage of illicit drugs, and has an occasional alcoholic beverage. His dietary intake consists of meat and potatoes on a regular basis. His daily routine includes consumption of one pot of coffee along with three square meals. He does not participate in a regular physical activity routine which has contributed to a gradual weight gain. He is current on age-appropriate

immunizations which include influenza and pneumonia vaccines. He reports medication usage of daily Lisinopril 20 mg PO along with TUMS for heartburn relief.

Review of systems reveals no recent change in weight or appetite. He denies fever, chills, night sweats and malaise. He denies headache, lightheadedness and dizziness. He denies recent upper respiratory illness, congestion or rhinorrhea. He denies mouth and throat pain, lymph node/neck tenderness, and denies any difficulty swallowing.

Physical examination reveals a patient with a normal heart rate and respiratory rate. He is mildly hypertensive at 149/88. He is pleasant, appears in no acute distress and appropriate in conversation with examination. Skin is warm, dry and intact. Neck is supple without palpable nodes and his thyroid is non-tender and non-enlarged. He has no JVD or carotid bruits. S1 and S2 heart sounds are auscultated without S3 or S4, murmurs, gallops or rubs. Respirations are even, non-labored and regular. Lungs are clear to auscultation throughout all lung fields without and adventitious sounds or wheezing. He does demonstrate an intermittent dry cough.

Diagnostic labs include a CBC and BMP which are both within normal limits. A CXR was not warranted given his history and clinical presentation. He was diagnosed with suspected GERD based on his physical examination and presenting complaints. We addressed the age appropriate Adult Health Related to Quality of Life measures of a colonoscopy, abdominal aortic aneurysm and aspirin to prevent cardiovascular disease into the recommended treatment plan. Once we addressed the necessary screenings, appropriate measures were addressed to decrease episodes of "burning in my throat". These include: decreasing his daily coffee intake, a more well-rounded diet to include all food groups to provide optimal health and regular moderate physical activity and a discussion about inactivity as detrimental in the course of GERD.

Literature Review

Initial treatment of mild and episodic heartburn and regurgitation symptoms is often to medicate with over-the-counter products. As symptoms worsen, patients may seek medical attention where proton pump inhibitors (PPIs) are often prescribed. Unfortunately, PPIs are often the mainstay in treatment of GERD without consideration of alternative interventions (Kinoshita and Ishihara, 2008). Long-term usage of PPIs has proven to increase body weight, which increases GERD episodes. Proton Pump Inhibitors are often recommended without consideration of incorporating possible lifestyle changes. For transient symptoms, non-pharmacological interventions focusing on lifestyle changes are ideal. Lifestyle changes which include behaviors modifications, weight loss or dietary changes could prevent, diminish or delay possible GERD-like complications.

The main goal with lifestyle interventions is to relieve bothersome symptoms prior to esophageal injury. Esophageal injury is a known precursor to Barrett's esophagus, erosive esophagitis and esophageal adenocarcinoma (Yamamichi et. al. 2012). With appropriate patient focused interventions, these complications could be avoided.

Preventative and curative lifestyle modifications will be addressed in this literature review to demonstrate what interventions can be utilized to decrease or possibly eliminate episodes of heartburn and/or regurgitation. Implementation of individualized modifications are cost-effective and proven to be highly efficacious. Given the positive and protective factors which lifestyle interventions have demonstrated, providers should implement patient focused recommendations based on presenting symptoms (Dore and et. al. 2008).

Recommended lifestyle modifications for GERD tend to fall into one of three categories: (1) avoidance of potentiating foods which precipitate GERD reflux (e.g., coffee, alcohol, (2)

avoidance of acidic foods that may precede heartburn (e.g., citrus, carbonated drinks, spicy foods), and (3) implementation of lifestyle behaviors that may contribute to decreased esophageal acid exposure (weight loss, cessation of smoking, incline of head of bed, and avoiding recumbency for two to three hours after meals (Kahrilas, P. J., Shaheen, N. J., and Vaezi, M. F. 2008).

Given the wide variety of lifestyle recommendations, implementation of all interventions is inappropriate for every patient. Once the specific trigger is identified, we can target which intervention to implement. An individual who complains of postprandial heartburn, warrants to avoid spicy, onions, garlic, foods high in fat content or even alcohol beverages. An individual complaining of nighttime heartburn and regurgitation of severity which disturbs his/her sleep may be advised to elevate the head of the bed. For an individual with a BMI considered overweight or obese, a reasonable recommendation would include a weight loss program that may prevent, or possibly postpone, the need for acid suppression (Kahrilas et. al. 2008). In order to provide appropriate interventions, identification of precipitating triggers is warranted. If numerous possible triggers are present, selective elimination is necessary in order to eliminate the most detrimental factor in the treatment of GERD.

Numerous interventions are effective for decreasing GERD and GERD-like symptoms but the evidence shows weight loss is one of the most efficacious interventions which should be initially implemented (Patrick, 2011). Given the negative impact that increased weight has on GERD symptoms and other disease processes, this non-pharmacological intervention will be addressed first.

Weight Loss

Lack of regular physical activity, or a history of a sedentary lifestyle can contribute to an elevated BMI, which equates to either overweight or obesity. Excessive adipose tissue negatively impacts our bodies which increases the risk of developing GERD two to three fold in this population (Friedenberg, F. K., Xanthopoulos, M., Foster, G. D., & Richter, J. E., 2008). Efficacy of weight loss has shown to have a protective effect against acid reflux along with acting as a protective influence against GERD. Weight loss programs need to be incorporated where appropriate. Regular exercise proves to be cost-effective where usage of over-the-counter or prescribed medications are reduced or eliminated. Regular physical activity, therefore, is budget friendly and efficient. Lifestyle changes, behavior modifications or implementation of structured weight loss programs are often underrated and overlooked. Medical providers should recommend non-pharmacological interventions even if current AGA guidelines are contradictory. Providers should always encourage lifestyle changes in individuals whom demonstrate a willingness to make appropriate modifications.

An effective weight loss program which includes dietary monitoring, increasing physical activity and behavioral changes would be beneficial for individuals who are overweight and/or obese. (Katz et.al. 2013; Kushner and Kusher, 2013). Patient driven care along with provider monitoring is critical in effective life style modifications. Implementation of a structured intervention has shown resolution of GERD symptoms and warrants intervention where applicable. Even if total resolution of symptoms is not achieved, weight reduction is an important weapon in the battle against the GERD epidemic.

Healthy Diet

Along with weight reduction, a healthier intake of foods would also be beneficial on controlling GERD symptoms. Assessment of patients' dietary intake warrants investigation in order to determine possible triggers. Collaboration between patient and provider is critical in identifying possible triggers. A dietary food journal over a one week timeframe would be beneficial in order to pinpoint the aggravating food(s). In our case study, the patient consumed three meals daily with meat and potatoes being a staple. He reports usage of TUMS after every meal which warrants an investigation to see what exactly is triggering postprandial heartburn. He would also benefit from a more balanced diet which include fruits, dietary fiber and low in fat. Fruits and fiber is known to have a protective effect on GERD and reduce GERD-like symptoms (Khan et. al. 2012).

Encouragement of replacing possible triggers with healthier options would benefit patients two-fold. Decrease in heartburn and regurgitation could diminish and possibly contribute to weight loss. Precipitating triggers are often difficult to isolate but some of the most notorious triggers are carbonated beverages, spicy foods, acidic foods, alcohol and/or coffee or caffeinated drinks. Individuals have reported heartburn and regurgitation with consumption of onions, peppers, citrus fruits and spices (Saad and Chey, 2006). Potential triggers are advised to be eliminated along with recommendations to avoid foods which increase acid productions. These culprits include fatty acids, refined foods, such as white breads, pastas and sugars (Festi et. al. 2009). Avoidance of triggers and acid producing foods are often difficult to eliminate with lifelong habits. Providers need to provide positive encouragement, ample education and timely follow-up for optimal care. Providing assurance, support and positive interaction will enhance patient compliancy and decrease episodic GERD-like symptoms.

Additional recommendations include: having dinner three hours prior to going to bed; foregoing a midnight snack when the urge arises; including breakfast on a daily basis and consumption of food at a slower pace (Yamamichi et. al 2012). Research has proven that these four interventions decreased acid reflux quantity and time exposure.

Avoiding Triggers

Beverages such as alcohol and coffee (both caffeinated and decaffeinated), tea, cola, tomato juice and citrus juice are considered potential triggers. In the case study, the patient verbalized consumption of one pot of coffee for numerous years. He also stated that no heartburn or regurgitation was noticed after coffee intake.

Coffee (both caffeinated and decaffeinated) has numerous variables which influence its potential adverse side effects. Considerations to investigate during patient interview include concentration of coffee, quantity, type, method of processing, caffeine content or even the roasting process employed. Research reveals that most individuals tend to consume coffee after meals which decreased LES tone. Timing of caffeine consumption is known to play a detrimental role post-prandial. Current research demonstrates contradictory studies where coffee and caffeinated beverages were cited as possible triggers (Lucie, et. al. 2010 and El-Sera, et. al. 2007); but also showed no correlation between caffeine and GERD (Kaltenbach et. al. 2006).

Even with the conflicting data, the individual presented in the case was noted to consume copious amount of caffeine on a daily basis. Regardless of the differences found in studies, an intervention of gradually reducing caffeine intake should be considered in those patients where it is thought to be a potential trigger. Reduction with eventual elimination of coffee should be highly recommended.

Caffeine has demonstrated a significant reduction in lower esophageal sphincter tone post-consumption. With decreased LES tone, acid reflux increases significantly. There is a known positive correlation between caffeine and GERD (Yamamichi et.al. 2012). In the case study, caffeine demonstrated an adverse side effect with the patients' heartburn and regurgitation. Decreasing or eliminating caffeine may relieve GERD symptoms and decrease blood pressure.

Head of Bed Elevation

Resolution of daytime GERD symptoms can be resolved with avoiding triggers and recumbency. However, nocturnal heartburn and regurgitation pose a challenge for individuals. Acid reflux is more injurious at night when compared to daytime (Khan, B.A., Sodhi, J.S., Zargar, S.A., Javid, G., Yattoo, G.N., Shah, A., Gulzar, G.M., and Khan, M.A. 2011). One of the two most efficacious interventions which decreased heartburn and regurgitation are lifestyle interventions which led to weight loss and elevation of the head of the bed (Patrick, 2011). Head of bed elevation was noted to be highly effective in reducing nocturnal GERD symptoms. Implementation of bed head elevation is noted to decrease esophageal acid exposure and increase clearance times which dramatically decreasing heartburn and regurgitation (Khan et. al. 2012). Bed head elevation is simple and easily implemented for individuals with nocturnal heartburn or regurgitation. Education for proper elevation include avoidance of pillows and elevating the headboard on bricks/blocks which are five to six inches in height. In addition to bed head elevation, studies reveal that lying in the left lateral decubitus position greatly reduces transient GERD with recumbency. Cost-effectiveness and efficacy are high with this minimal modification. Therefore, individuals who suffer with nocturnal GERD should be highly encouraged to implement bed head elevation.

Pertinent Findings to Incorporate in Future Practice

The evolution of GERD symptoms is directly correlated to life-long eating patterns, behaviors, active or inactive lifestyle, and consciously monitoring of weight. Recommendations and encouragement to make lifestyle modifications and avoid triggers would be beneficial for all individuals, especially those with GERD symptoms.

Assistance whether through providing referrals or support group may be warranted for positive impact on individuals who would greatly benefit with weight loss. With the gradual rise in the overweight and obese population, along with the direct correlation of increased weight and heartburn and regurgitation, emphasizing weight management should be at the cornerstone of our practice.

Explanation and recommendation of a healthy diet which consists of: fruits, vegetables, lean meats, foods rich in fiber along with adequate filtered water consumption. Avoidance of processed, fried and/or fatty foods should be strongly encouraged. Moderation of sugar consumption would also benefit the individuals.

Given the controversial challenge of caffeine in a diet, practitioners should take a “holistic approach” to each individual. Granted, evidence-based research is needed and strongly advised to follow, but not all patients fall into “one category” and we should not attempt to modify necessary interventions into “a quick fix all” for everyone who falls under the broader spectrum. Collaboration between patient and provider should maximize all strengths in order to provide a patient-driven and focused plan of care.

Practice Recommendations

- An initial evaluation of possible lifestyle changes should be assessed prior to the use of pharmacological interventions for GERD.

- A collaboration between provider and patient is necessary in order to assess his or her weight concerns. If the patient is overweight or obese, weight loss is a highly recommend intervention.
- A week long dietary food intake journal should be utilized in order to identify possible triggers.
- Implement a dietary plan where water intake is encouraged in place of caffeine beverages.
- For nocturnal heartburn and regurgitation, highly recommend and educate on head of bed elevation for symptom relief.

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