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HEART BURN IN PRIMARY CARE

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Abstract:

Introduction: *Gastroesophageal reflux disease (GERD) is a chronic and widely prevalent medical condition, with up to forty percent of the general population suffering from its clinical manifestations at least once per month.1 GERD usually develops when the reflux of stomach contents leads to the development of troublesome clinical manifestations or complications. 2 Clinical manifestations of gastroesophageal reflux disease could generally range from developing heartburn and/or regurgitation to having cough and hoarseness of voice. Although most gastroesophageal reflux disease patients' clinical manifestations respond following proper medical treatment, the diagnosis and management in those gastroesophageal reflux disease patients whose clinical manifestations do not respond to standard pharmacological agents might be difficult.*

Aim of work: *In this review, we will discuss heart burn in primary care*

Methodology: *We did a systematic search for heart burn in primary care using PubMed search engine (http://www.ncbi.nlm.nih.gov/) and Google Scholar search engine (https://scholar.google.com). All relevant studies were retrieved and discussed. We only included full articles.*

Conclusions: *Gastroesophageal reflux disease is a chronic, very prevalent condition that is repeatedly encountered in internal medicine. It is usually diagnosed clinically, but specific investigations like endoscopy and pH testing might be important in certain patients with specific clinical manifestations. Despite the fact that proton pump inhibitors (PPIs) are first choice for treatment, physicians must have good knowledge of their short-term and long-term adverse events.*

Key words: *Heart burn, presentation, causes, management, primary care.*

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INTRODUCTION:

Gastroesophageal reflux disease (GERD) is a chronic and widely prevalent medical condition, with up to forty percent of the general population suffering from its clinical manifestations at least once per month. [1] GERD usually develops when the reflux of stomach contents leads to the development of troublesome clinical manifestations or complications.[2]

Clinical manifestations of gastroesophageal reflux disease could generally range from developing heartburn and/or regurgitation to having cough and hoarseness of voice. Although most gastroesophageal reflux disease patients' clinical manifestations respond following proper medical treatment, the diagnosis and management in those gastroesophageal reflux disease patients whose clinical manifestations do not respond to standard pharmacological agents might be difficult.

In this review, we will discuss the most recent evidence regarding heart burn in primary care

METHODOLOGY:

We did a systematic search for heart burn in primary care using PubMed search engine (http://www.ncbi.nlm.nih.gov/) and Google Scholar search engine (https://scholar.google.com). All relevant studies were retrieved and discussed. We only included full articles.

The terms used in the search were: heart burn, presentation, causes, management, primary care.

SYMPTOMS:
TYPICAL, ATYPICAL, AND ALARM

Symptoms of gastroesophageal reflux disease could be categorized as classical (like heartburn and/or regurgitation) or atypical (like cough, hoarseness, asthma, throat-clearing, chronic laryngitis, dyspepsia, chest pain, and/or nausea). Atypical clinical manifestations are generally more likely to be caused by gastroesophageal reflux disease in cases where the patients already have classical manifestations and when those clinical manifestations respond sufficiently following a trial of a PPI. [3]

Alarming symptoms.

Physicians must keep in mind that the presence of extraesophageal presentations might be attributed to several factors, and it might be challenging to detect that the reflux itself, even if present, is in fact the etiology. Although the presence of chest pain might be caused by gastroesophageal reflux disease, it is essential to exclude the presence of a cardiac-related chest pain prior to considering gastroesophageal reflux disease as the responsible etiology. In addition, the presence of dysphagia as well as other classical or atypical clinical manifestations makes it important to further perform investigations to detect potential complications like the presence of an underlying motility condition, an esophageal stricture, an esophageal ring, or cancer. [4] Other alarming clinical manifestations can include odynophagia, hemorrhage, weight loss, and anemia.

DIAGNOSING GERD:
RESPONSE TO A PPI IS DIAGNOSTIC

Patients with gastroesophageal reflux disease who show classical clinical manifestations of the disease and respond following a course of treatment with PPI require no further assessment to make a diagnosis of gastroesophageal reflux disease.[5] however, further assessment must be done in patients who show classical clinical manifestations of gastroesophageal reflux disease and do not respond sufficiently to a course PPI therapy, in patients with suspected gastroesophageal reflux disease but presenting with atypical manifestations, and/or in patients with suspected gastroesophageal reflux disease in whom an anti-reflux surgical intervention is being considered.

Try a PPI for 6–8 weeks

Providing relief of both the heartburn and regurgitation following a six-to-eight-week trial of a PPI strongly suggests a diagnosis of gastroesophageal reflux disease. on the other hand, a negative course of PPI (failure to relieve clinical manifestations) does not necessarily exclude the presence of a gastroesophageal reflux disease, this in fact was found to be associated with a sensitivity of 78% and specificity of 54%. [6]

Despite this significant limitation, a course of PPI therapy must be indicated to patients with suspected gastroesophageal reflux disease manifesting with classical clinical manifestations of the disease and do not show alarming features. This approach remains to show higher cost-effectiveness when compared with the other approach where physicians proceed directly to performing diagnostic testings. [7]

Endoscopy

Endoscopy findings in patients with gastroesophageal reflux disease usually include the presence of erosive esophagitis, peptic strictures, and Barrett esophagus (in late cases). Esophageal erosions are highly suggestive of the presence of gastroesophageal reflux disease; the Los Angeles categorization system, a standardized scoring system for grading the grade of

severity of erosive esophagitis (from A to D, with D the being most severe) gives an objective evidence-based way to evaluate the severity of gastroesophageal reflux disease. [8] on the other hand, most patients who manifest with heartburn and/or regurgitation do not in fact show erosive disease on endoscopy, therefore, limiting the sensitivity of performing an upper endoscopy as the routine first diagnostic test among all patients who have suspected gastroesophageal reflux disease. [9]

Generally, endoscopy is recommended to be used among patients who manifest with alarming manifestation, patients who have noncardiac-related chest pain, patients who fail to respond following course of PPI, and patients who suffer from chronic gastroesophageal reflux disease clinical manifestations and multiple risk factors for Barrett esophagus other than gastroesophageal reflux disease, like older age, male gender, white ethnicity, obesity, and cigarettes smoking. [10]

Ambulatory pH and impedance monitoring

Ambulatory pH observation is considered to be the gold standard investigation for the presence of pathologic acid exposure in the esophagus. pH monitoring is used patients with suspected gastroesophageal reflux disease who do not respond to PPI, patients who initially presence with atypical clinical manifestations, and prior to performing and anti-reflux surgical operation. generally, pH monitoring must be done following the cessation of PPI therapy for at least seven days, as this test is very likely to be normal when an individual is using a PPI. It is performed either with a trans-nasal catheter for twenty-four hours, or with a wireless capsule, that collects forty-eight to ninety-six hours of information. Research on the wireless system shoed that its sensitivity can potentially increase with twelve to twenty-five percent when it is done for forty-eight hours when compared to performing it for only twenty-four hours. [11]

The pH monitoring could be used together with impedance testing to assess for the presence a non-acid reflux. on the other hand, the significance of a non-acid reflux remains an area of debate, and therefore the Esophageal Diagnostic Advisory Panel recommended that the decision to do an anti-reflux surgical operation must not be made according to abnormal impedance testing. During pH monitoring and impedance testing, special computer softwares can evaluate how closely the patient's clinical manifestations are associated with the esophageal acid exposure. The symptom index (SI) and symptom association probability (SAP) are the measurements of clinical manifestation which are most commonly used in everyday clinical practice. The SI calculates the overall strength of the association, and an SI that is higher than fifty percent is usually considered to be a positive result.16 on the other hand, the SAP detects whether this association can have happened by random chance, and an SAP that is higher than ninety-five percent is considered to be statistically significant. In patients who show normal levels of esophageal acid exposure, an increased SI or SAP might suggest a component of esophageal hypersensitivity in the development of clinical manifestations.

Generally, it is recommended to perform a pH-only trans-nasal or wireless testing off PPI therapy to detect if the patient has pathologic acid exposure in the distal esophagus. Combined pH-impedance testing is classically kept for patients who have atypical symptoms and do not sufficiently respond to treatment with PPI and abnormal results on previous pH monitoring, that allows for association of non-acid reflux and clinical manifestations.

Other tests

Esophageal manometry and barium esophagography generally have limited importance during the first evaluation of gastroesophageal reflux disease. On the other hand, they must be used in specific cases to exclude the presence of achalasia and other esophageal motility conditions, especially among patients whose clinical manifestations do not show sufficient response to PPIs. Therefore, esophageal manometry must be done before considering performing anti-reflux surgery.

MANAGING GERD:

Lifestyle modifications

Lifestyle modifications are considered to be the first-line therapy for the treatment of gastroesophageal reflux disease. Modifications which have been well-studied include physical exercise, head-of-bed elevation, cessation of smoking, cessation of alcohol intake, and cessation of late-night meals. Another possible modification that has previously been suggested is to stop consuming foods that can aggravate reflux symptoms like caffeine, coffee, chocolate, highly acidic foods (like oranges and tomatoes), spicy foods, and fatty foods. Of these, only physical exercise and head-of-bed elevation have been confirmed to be effective in improving gastroesophageal reflux disease. [12]

Three previously-published randomized clinical trials showed that gastroesophageal reflux disease clinical manifestations and esophageal pH values improved

with head-of-bed elevation while using blocks or incline foam wedges.

Multiple published cohort studies showed a decline in gastroesophageal reflux disease clinical manifestations following significant weight loss. [13] more recently, a published prospective cohort study also showed that cessation of smoking significantly improved gastroesophageal reflux disease clinical manifestations in patients with normal weight and severe clinical manifestations. [14]

Antacids

Multiple antacids (like sodium bicarbonate, magnesium hydroxide, calcium carbonate, and aluminum hydroxide) are currently available over the counter and without the need for prescriptions. Antacids were primarily thought to improve heartburn manifestations by elevating the pH of gastric contents that may eventually reflux into the esophagus. On the other hand, well-controlled studies have demonstrated that they provide significant relief of the heartburn by neutralizing the acid in the esophagus, without the presence of significant impact on gastric pH. Antacids achieve rapid but short-term relief from an already present episode of heartburn. Because they do not significantly elevate the gastric pH, they do not achieve prevention of a subsequent reflux episode from repeated exposure the esophagus to gastric acid and causing heartburn. In addition, antacids have not been found to significantly contribute to the improvement of erosive esophagitis. [15] therefore, they might not be ideal for the treatment of recurrent reflux heartburn.

Sodium alginate

Gastric acid pockets are unbuffered pools of acid that float on top of ingested food.28 They develop as a consequence of poor mixing of newly secreted acid and food in the proximal part of the stomach, that remains relatively quiescent following a meal when compared to the distal part of the stomach. [16] In gastroesophageal reflux disease, the proximal extension of the acid pocket to reach above the diaphragm raises the risk of acid reflux.30 The acid pocket is thus an essential source of developing postprandial acid in gastroesophageal reflux disease and, therefore, represents a possible therapeutic target. Newer evidence claims that alginates might act directly on the acid pocket. Alginates are natural polysaccharide polymers which, when are on contact with the gastric acid, precipitate within few minutes into a low-density viscous gel of near-neutral pH. This alteration in pH stimulates the sodium bicarbonate in the formulation to release carbon dioxide that essentially becomes trapped in the alginate gel, leading to its float to the top of the gastric contents like a raft. [17]

A previously published randomized clinical trial showed that sodium alginate was as beneficial as PPIs in achieving relief from clinical manifestations in gastroesophageal reflux disease patients with nonerosive reflux disease. Alginate has also been demonstrated to achieve more postprandial reflux relief when compared to the use of antacids.

Histamine-2 receptor antagonists

Histamine-2 receptor blockers act more swiftly and elevate postprandial gastric pH more rapidly when compared to PPIs, therefore making them another good alternative for the prevention of postprandial gastroesophageal reflux disease. Taking these medications at bedtime might be beneficial in gastroesophageal reflux disease patients with objective nighttime reflux despite the use of PPIs. On the other hand, tachyphylaxis might occur in some cases as early as one week following the initiation of a combination therapy.

Proton pump inhibitors

Currently, there are 7 available PPIs agents for the treatment of gastroesophageal reflux disease. These include 4 that can be got without prescription and over the counter (these are omeprazole, lansoprazole, esomeprazole, and omeprazole-sodium bicarbonate) and 3 available only by prescription and cannot be got without a prescription (these are rabeprazole, pantoprazole, and dexlansoprazole). Studies have demonstrated than a standard six-to-eight-week trial of a PPI agent can achieve complete clinical manifestations relief in up to eighty percent of patients who have erosive reflux disease and in sixty percent of patients who have nonerosive reflux disease.[18] Clinically, PPI agents all appear to achieve similar effects in their clinical manifestations relief.38 Most PPI agents must be taken thirty to sixty minutes prior to meals. Exceptions include omeprazolesodium bicarbonate and dexlansoprazole, that could be taken regardless of meals time. Usually, it is recommended to start a PPI agent in a once-daily protocol for six to eight weeks and consider increasing the dose to twice-daily in cases where clinical manifestations do not totally respond. Patients who have mild intermittent gastroesophageal reflux disease clinical manifestations might benefit from the “on-demand” protocol of PPIs. This last protocol is best used for gastroesophageal reflux disease patients who have a nonerosive reflux disease without the presence of any evidence of Barrett esophagus on endoscopy.

Safety and adverse effects of PPIs

In the year 2010, the US Food and Drug Administration released warnings regarding
the possible development of wrist, hip, and spine fractures among PPI users. Most recent studies demonstrated that PPIs could be correlated with a minimal elevation in the risk of developing hip fractures in patients who are already at a high risk. on the other hand, the 2013 American College of Gastroenterology (ACG) guidelines still recommend that patients with diagnosed osteoporosis might remain on PPI therapy, and concerns for hip fractures and osteoporosis must not impact the decision to use PPIs for long-terms except among patients with other risk factors for developing hip fractures.

A higher risk of developing community-acquired pneumonia could not be clearly demonstrated in correlation with PPI therapy. Several studies, including randomized clinical trials, studied this possible association. On the other hand, evidence suggested that short-term but not long-term use of PPI might be correlated with an overall higher risk of community- acquired pneumonia. Current guidelines recommend that in gastroesophageal reflux disease patients who need to use a PPI, the medication must not be stopped only on the basis of a possible risk of developing community-acquired pneumonia.

Due to an unknown mechanism, PPIs are suggested to decrease the absorption of intestinal magnesium, causing hypomagnesemia. A previous meta-analysis that was published in the year 2011 demonstrated that PPI-induced hypomagnesemia is a drug-class adverse event and usually occurs following a median of 5.5 years of PPI use. Cessation of PPI caused magnesium recovery in four days, and re-challenge caused recurrence within four days. therefore, to avoid placing patients on long-term PPI therapy at risk, clinicians must consider this problem. Ideal practice is to check the levels of magnesium in serum before initiating a patient on long-term PPI therapy, and then to repeat the measurement every one to two years.

Baclofen

Transient relaxation of the lower esophageal sphincter has been demonstrated to be associated with reflux in healthy individuals and in patients with gastroesophageal reflux disease. Baclofen, a muscle relaxant with selective gamma-aminobutyric acid receptor class B agonist properties, decreases the transient relaxation of the lower esophageal sphincter in humans. In a previously published, double-blind, randomized clinical trial, baclofen was found to be correlated with a significant reduction in upright reflux on 24-hour pH monitoring and significant improvement in belching and overall reflux clinical manifestations. on the other hand, baclofen is still not approved by the US Food and Drug Administration for the use in the treatment of gastroesophageal reflux disease, and its use may be limited by adverse events such as the development of somnolence and dizziness.

CONCLUSIONS:

Gastroesophageal reflux disease is a chronic, very prevalent condition that is repeatedly encountered in internal medicine. It is usually diagnosed clinically, but specific investigations like endoscopy and pH testing might be important in certain patients with specific clinical manifestations. Despite the fact that proton pump inhibitors (PPIs) are first choice for treatment, physicians must have good knowledge of their short-term and long-term adverse events.

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