Acid Reflux Disease (GERD): Some Common Misconceptions
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Americans are exposed daily to numerous commercials for medications to stop acid reflux. We are lead to believe that this is a disease state rather than a condition of abnormal digestion. Instant relief from regurgitation of acid into our throats causing horrible burning pain is available by going to the nearest drug or grocery store and picking up a box of Zantac or Tagamet. These medications provide instant relief until their effect wears off at which time we return to the drug store and purchase another brand such as Nexium. Within a few days no more burning pain! Anyone suffering from GERD no longer need to bother their physician. Obviously they must be perfectly safe to use because they are sold over the counter. We are lead to believe we can take them without any worry or concern of any adverse reactions. You know what happens when we assume? Let's look into how these over the counter (OTC) drugs really work.

The H_2-receptor antagonists, commonly called H2 blockers are a class of drugs used to block the action of histamine on parietal cells in the stomach, which thereby decreases the production of acid by these cells. The prototypical H_2 antagonist was cimetidine, (Tagamet) developed by Smith, Kline & French, (now named GlaxoSmithKline) in the mid-to-late 1960s and first marketed in 1976. Tagamet, would later become the first ever blockbuster drug by setting record sales. Ranitidine, first sold as Zantac, came along in 1981 and was touted to have fewer adverse effects and drug interactions but to be much more potent with ten times the activity of Tagament and much longer-lasting action. By 1988, it became the world's biggest-selling prescription drug. The H2 receptor agonists have largely been surpassed in popularity by the more effective proton pump inhibitors (PPI's). While initially these drugs were by prescription only, in the United States, they are now all available over the counter.

Despite the very popular use of the H_2 antagonists and proton pump inhibitors, adverse drug reactions (ADRs) are common. Both drugs cause impaired mineral and vitamin absorption, especially Vitamin B12 and can lead to overgrowth of Candida and the bacteria Clostridium difficile. Tagamet also appears to have more severe side effects such as irregular heart beats, and has been shown to bind to sex hormones creating breast development in men as well as contributing to impotence. In a longitudinal study of elderly African Americans published in 2007, long-term use of H_2 blockers appeared to increase the risk of cognitive decline. Confusion and agitation are common side effects especially noted in the elderly.

Additional problems with these over the counter drugs, Tagamet in particular, is that they interfere with other prescription medications patients maybe taking by increasing their concentrations to toxic levels. These drugs include the commonly prescribed heart medications such as warfarin, beta blockers (propranolol, metoprolol, labetalol), calcium channel blockers, anti depressants, (tricyclic antidepressants), some benzodiazepines, antibiotics/antifungals (sulfonylureas, metronidazole), and ethanol.

Proton pump inhibitors (or PPI's) are another class of drugs used to treat the symptoms of GERD. They are a group of drugs whose main action is to ensure a pronounced and long-lasting reduction of gastric acid production. They are the most potent inhibitors of acid secretion available today. These drugs are also among the most widely-selling drugs in the world with "Prilosec" (Omeprazole) becoming the biggest-selling drug for many years.

Other commonly used PPI's include the following:

- **Esomeprazole (Nexium)**
- **Lansoprazole (Prevacid)**
- **Dexlansoprazole (Kapidex)**

- **Pantoprazole (Protonix)**
- **Rabeprazole (Rabecid, Aciphex, Pariet, Rabeloc)**

Proton pump inhibitors (PPI's) act by irreversibly blocking the hydrogen/potassium adenosine triphosphatase enzyme system (the H+/K+ ATPase, or more commonly called the gastric *proton pump*) of the gastric parietal cell. The proton pump is the terminal stage in gastric acid secretion, being directly responsible for secreting H^+ ions into the gastric lumen. The PPI's reduce gastric acid secretion by up to 99%, resulting in a class of drugs that are significantly more effective in reducing acid secretion when compared to H2 antagonists. The lack of the acid in the stomach will aid in the healing of duodenal ulcers, and reduces the pain from indigestion and heartburn, but also causes a whole host of significant side effects.

The range and occurrence of adverse effects are similar for all of the proton pump inhibitors, though they have been reported more frequently with omeprazole. Common adverse effects of PPI's include: headache, nausea, diarrhea, abdominal pain, fatigue, and dizziness. Other reported adverse effects include: rash, itch, excessive gas/bloating, constipation, and even emotional symptoms of anxiety and depression.

Initially both of these medications were meant to be used short term, anywhere from 10 days to 8 weeks. However many people find such great relief from the burning pain that they continue to take these medications for years! In these cases, studies have now shown more serious seemingly unrelated health problems to occur such as serious intestinal infections, pneumonia, osteoporosis, and increased risk of recurrent heart attacks due to a drug interaction.

H2-receptor antagonists have also been shown to increase the risk twofold of developing a Clostridium difficile infection, and proton pump inhibitors a threefold risk, especially in the hospitalized elderly population. Clostridium difficile is a normally occurring bacterial inhabitant of our gastrointestinal tract in small numbers. However, if an overgrowth is allowed to occur it can lead to pseudomembranous colitis, a severe infection of the colon, requiring hospitalization and can lead to death. The bacterium releases toxins that can cause bloating, constipation, and diarrhea with severe abdominal pain. Prolonged use of H2 antagonists and PPI's increase the risk of this occurring.

Both classes of medications have also been associated with an increased risk of community-acquired pneumonia. A study published in the journal Pediatrics, in 2006, looked at 186 children aged 4-36 months, half of whom were taking a gastric acid inhibiting drug and the other half a placebo. The results showed that the use of a gastric acid inhibiting drug was associated with an increased risk of acute gastroenteritis and community-acquired pneumonia in GERD-affected children. The patients most at risk for pneumonia were those with significant co-morbid illnesses such as diabetes or immunodeficiency, which implicates these medications as a major risk factor for opportunistic infections. The authors reported that this effect seems to be sustained even after the treatment for GERD has ended. The study also uncovered an observed increased incidence of intestinal and respiratory infection in otherwise healthy children taking these gastric acid inhibitors for GERD treatment.

In a study of 135,000 people 50 or older, those taking high doses of PPIs for longer than one year have been found to be 2.6 times more likely to break a hip. Those taking smaller doses for 1 to 4 years were 1.2 to 1.6 times more likely to break a hip. The risk of a fracture increased with the length of time taking the PPIs. The results of this study were confirmed by a Canadian research study published in the Canadian Medical Association Journal just released in August of 2008.

Patients who take the common cardiac drug clopidogrel following a heart attack are at significant risk of a recurrent heart attack if they are also taking a proton pump inhibitor. The research, which took place over six years, involved more than 13,000 heart attack

patients aged 66 years and older who were started on the blood-thinning drug clopidogrel. Scientists found that patients' risk for readmission to hospital for another heart attack was significantly higher if they were taking one of several proton pump inhibitors (PPIs). The investigators found no such increased risk for patients taking the PPI drug (Protonix) pantoprazole, or a H2 blocker.

Clopidogrel, which makes blood platelets less "sticky" and thus less likely to clot, is routinely prescribed to patients after a heart attack to prevent a recurrence. Previous research suggests that, with the exception of pantoprazole, PPIs can inhibit the liver's ability to convert clopidogrel to its active form, a critical step required for clopidogrel to exert its effect. The problem becomes more complicated as most patients treated with clopidogrel also receive aspirin (acetylsalicylic acid/ASA) to prevent another heart attack, but ASA can cause bleeding from the stomach as the result of ulcer formation. Recent guidelines from the American Heart Association, the American College of Gastroenterology, and the American College of Cardiology recommend that all patients aged 60 years or older who are receiving aspirin also be treated with a PPI to reduce the risk of bleeding.

Do we really want to block production of stomach acid?

Although the production of stomach acid has been made in the media and in advertising campaigns to sound like a bad thing, yet it is not all bad. It is really there to help us digest our food. It is a natural substance secreted by parietal cells in response to a variety of molecules in our body such as histamine, acetylcholine, and gastrin. The histamine receptors act by increasing intracellular cAMP, whereas the muscarinic and gastrin receptors increase intracellular Ca^{2+} levels. Both cAMP and Ca^{2+} acts via protein kinases to increase the transport of acid into the stomach.

The resulting highly-acidic environment causes proteins from food to unfold (or denature), exposing the peptide bonds that link together amino acids. HCl also activates pepsin, an endopeptidase, allowing it to help digest the hamburger steak we just ate by breaking specific peptide bonds, a process known as proteolysis. The parietal cells, although responsible for increasing the acidity of the stomach upon receipt of food, can also secrete bicarbonate to neutralize the acid when its job is done. The partially digested food is now safe to enter the digestive tract without causing any burning or irritation of the mucosal lining.

Hydrochloric acid is not only required for the digestion of proteins but it is also required for the absorption of nutrients, particularly of vitamin B12 and of calcium. Hydrochloric acid is also one of our bodies first defense mechanisms against foreign pathogens commonly found in the foods we eat from invading our body as few microbes can live in such an acidic environment.

If we need stomach acid why do some people have a problem with it?

The people most at risk for developing GERD can be categorized into two groups:
1) Lifestyle
2) Genetics

<u>Lifestyle:</u>
- **Cigarette smokers,**
- **Frequently consuming too many acidic greasy foods and/or large meals,**
- **Eating and then laying down,**
- **Taking heart medications such as Calcium Channel blockers,**
- **Obesity**

- **Pregnancy**

Genetics
- **Hyper or hypochlorhydria (easily determined by knowing your Blood type)**
- **Food allergies**

In the absence of H2 antagonists and PPI's, what does natural medicine have to offer?

There are a variety of natural means to correct GERD, as the symptoms of GERD are an attempt by the body to correct an imbalance. GERD is a medical condition, not a disease and can be handled effectively with some very wise lifestyle choices and temporary natural medicines.

Modify your eating habits
Eat smaller meals especially in the evening so your body has time to begin the digestion process before falling asleep. This will help eliminate reflux or regurgitation of the stomach acid which occurs more often when people lie down. If you are one to fall asleep soon after you eat your meal, do so sitting up in a chair, or make an appointment to see your naturopathic physician to uncover the causes for such extreme fatigue and lethargy.

Going for a nice, casual, walk after dinner is also a great way to accomplish several things at once. It will help you begin to loose weight, if you have a few pounds to take off and it will also help speed digestion and the conversion of food into fuel.

Make an appointment with Dr. Ardolf
How do I know which foods are beneficial for me? How do I know which ones are causing indigestion? How do I know if I have an underlying bacterial infection from consuming all these OTC drugs for pain relief? A medication to stop the acid production is the opposite of what your body needs, therefore food will stay in your stomach longer and lead to GERD.

As we age, our bodies' ability to completely digest our foods diminishes. Dr. Ardolf can prescribe what your body needs to get you back on track. These natural prescriptions will not just help you feel better, they will also help aide the body in healing itself so the symptoms do not return.

In summary, GERD is a symptom of a complex dysregulation in our bodies' ability to digest the foods we consume on a day to day basis. The traditional treatment approach of the over the counter medications seem to further complicate the picture causing additional more serious health issues to occur. This does not need to be the case. GERD is a warning sign telling us how we are eating and living is not working. If caught in the early stages, you will be amazed at what some simple lifestyle changes can do for you. If on the other hand, your condition is one of long standing we can put you on a program to restore normal function which will eliminate chronic use of H2 antagonists and proton pump inhibitors.