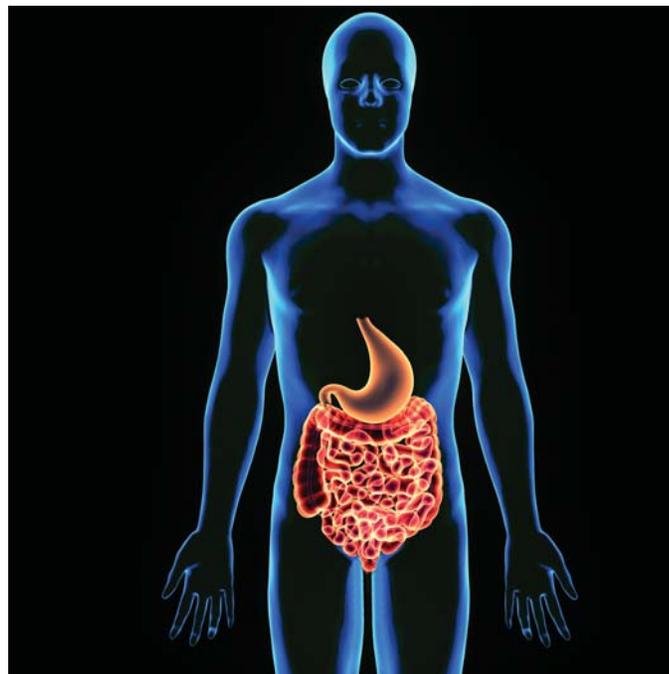


Proton Pump Inhibitors

Proton Pump Inhibitors in the News

You may have seen in the news some information about a drug class known as Proton Pump Inhibitors or PPIs. Some examples of this commonly used medication class are omeprazole (Prilosec), esomeprazole (Nexium), and lasoprazole (Prevacid). They are used by millions of Americans each year for different reasons including Peptic Ulcer Disease (PUD), Gastroesophageal Reflux Disease (GERD) or heartburn, and even to help prevent GI bleed in patients on medications that thin their blood. This highly effective and useful class of medication has benefited a countless number of patients over the years. Some information regarding side effects and potential harms of using these medications has recently been in the news. In this editorial I will try to go through what is being said, why it's being said, and how it may affect you.

Some of the problems being discussed in the news regarding PPI use include hypomagnesemia or low magnesium levels in the blood, a bacterial infection known as *Clostridium difficile*, osteoporosis, kidney disease, and dementia. These are all serious problems that I understand can be alarming to hear on the news, especially if you are one of the millions of Americans taking a PPI every day. One thing I want to stress about this information is that the research has shown there to be an association of PPI use with those problems but that does not necessarily mean that it causes them. In scientific research, much more data and evidence is needed to show a cause and effect relationship than to show an association. It is very difficult to pinpoint the direct link between medications and their side effects and all adverse events must be reported even if likely unrelated. That being said, it is always a good idea to talk to your doctor or pharmacist about the medications you are taking. If you are concerned about taking a PPI, it may be beneficial to talk to your doctor to see if you would be a good candidate for a trial reduction or discontinuation of your PPI. It is



very important that you work with your doctor, because for many patients, the benefits of taking a PPI greatly outweigh the risks.

PPIs work by shutting off a pump in the cells of the stomach that produce stomach acid. By shutting off this pump, PPIs decrease the acidity of our stomachs and GI tract which reduces heartburn pain and protects the intestines of people who have ulcers. Decreasing the acidity of the GI tract can affect the way that our bodies absorb nutrients and minerals.

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Calcium and magnesium are best absorbed in an acidic environment. It is thought that decreasing the acidity of the GI tract decreases the absorption of these two minerals. Calcium and magnesium are important for many functions of the body, but one in particular is bone health. This is one possible explanation for the association between PPIs, low magnesium and osteoporosis.

You may have heard that our GI tracts are full of bacteria. These bacteria help protect us from infection and aid in digestion. If we change the environment in our intestines, it makes sense that the types and quantity of bacteria in our intestines will also change. Our stomach's secretion of acid is a protective mechanism to prevent harmful bacteria from taking hold in our intestines. Clostridium difficile is a harmful and even sometimes fatal bacterial infection. Symptoms of this infection include multiple daily episodes of diarrhea (often greater than 10) and severe abdominal pain and cramping. It is a severe infection but it would be obvious to you that something was wrong if you were infected.

The last two problems of kidney disease and dementia are arguably the scariest. Our kidneys are essential to life. They are the filters of our body. They help keep the good stuff in and help get the bad stuff out. A lot of drugs are filtered through the kidneys so it is important that if you are taking medications regularly, including PPIs, you know how well your kidneys are working. This can be done easily through lab work at your doctor's office. It may be a good idea to talk with your doctor to see if you are due for this kind of lab work.

The association with dementia is much more difficult to explain and more research in this area is needed. It was seen more commonly in older adults (age greater than 65 years) and with patients on higher doses of PPIs. One explanation for this could be that older adults already have an increased risk of dementia or that those patients who need high

dose PPIs have a risk of dementia because of some other factor, possibly relating to their need for a PPI in the first place. This is one of the reasons why associations can be hard to explain. That being said, if you are taking a PPI and aren't sure why, I encourage you to have that conversation with your doctor. They can help you understand why you are taking this medication and help you attempt a trial reduction or discontinuation of it if they think it is appropriate.

Another thing I want to briefly mention is non-medication ways of reducing heartburn symptoms. Every person is different; therefore things that work for some won't work for others. Some ways to reduce the occurrence of heartburn include: avoiding food triggers like spicy food and alcohol, chewing each bite of food at least 10 times, and eating smaller meals. Sometimes symptoms are worse when a person is lying down because the door that protects our esophagus from our stomach acid gets left open or weakened with persistent heartburn. When that person lies down to go to bed, the acid attempts to creep up the esophagus causing the pain. Elevating the head of your bed or propping yourself up with an extra pillow can help with this.

There are side effects associated with all medications. Before your doctor prescribes a new medication they weigh the risks of using the medication against the benefits. I hope this helped explain what's in the news about PPIs and why it may be important. If you have any concerns about your medications, please discuss them with your doctor or pharmacist. It is not a good idea to stop taking your PPI suddenly or without your doctor's approval as this can cause a sudden flare up of your heartburn symptoms or may aggravate an underlying condition.

I wish you all a healthy and prosperous year.