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Eradicating Helicobacter Pylori: What the Gastroenterologist Needs to Know

Dr. Buch:
Did you know that only 70% of initial eradication attempts of Helicobacter pylori are successful. This may be due to a number of factors. Today, we will discuss these factors and how we can best treat this infection.

Welcome to GI Insights on ReachMD. I'm Dr. Peter Buch, and here with me is Dr. Erick Argueta, a resident physician at Brown University. He's also the co-author of How We Approach Difficult to Eradicate Helicobacter pylori, which was published in Gastroenterology so very recently in 2022.

Dr. Argueta, welcome to the program.

Dr. Argueta:
Thank you very much for having me today. I'm happy to discuss with you all.

Dr. Buch:
So Dr. Argueta, let's start off by discussing the reasons that eradication attempts fail. And in particular, what can you tell us about that?

Dr. Argueta:
Yeah, so this is a very important question and worth understanding for anyone treating H. pylori. H. pylori eradication is extremely common and likely more prevalent than people realize. In fact, it is estimated that anywhere between 1 in 5 people of those who are treated for an infection continue to have persistent infection, and more than 30% of those people require 2 or more courses of antibiotics in order to have a successful eradication. Therefore, prior to embarking on any other sorts of treatments, providers should attempt to fully understand why the patient may have failed eradication. For one, patient nonadherence to the treatment course is common and can occur for several reasons. As you can imagine, Bismuth quadruple therapy is a complex regimen that involves taking multiple pills at various times throughout the day for a total of 14 days. As a result, many patients may often forget to take their medications, often miss doses, and fail to complete the full antibiotic course all together. In addition to this, antibiotics themselves can potentially cause unwanted side effects, such as nausea, vomiting, or diarrhea, which may cause patients to stop taking antibiotics all together. Some antibiotics, such as tetracycline, may also be extremely costly and prevent their use. As such, providers should make an active effort to communicate with patients about how to take their medications as well as provide some anticipatory guidance on what to expect and instruct them to call with any sort of barriers. In addition to this, resistance rates to the most commonly prescribed antibiotics are rising. Therefore, it is becoming harder and harder to treat H. pylori with the same drugs. But when possible, it is best to use local or regional H. pylori resistance patterns to guide selection.

Dr. Buch:
And if we turn our attention now to treatment strategies, what misconceptions do patients have about penicillin allergies?

Dr. Argueta:
This is something that we often see in clinical practice. You know, penicillin allergies are often misconceived by both the provider and the patient. It becomes particularly important for refractory H. pylori cases as resistance rates to amoxicillin have remained low and an important drug within our drug selections. More than 10% of patients believe they are allergic to penicillin, but in practice, the vast majority of these patients can tolerate a penicillin without any complications. Often, patients perceive a known side effect, such as drugs, causing nausea, vomiting or diarrhea, as being an allergy when, in fact, this is a known adverse effect of taking antibiotics. By taking a detailed history, we'll find that penicillins were previously prescribed and often well-tolerated. However, in clinical practice, whenever there is doubt, providers should have a very low threshold to refer patients with a possible allergy to an allergist in order to

enable the use of amoxicillin.

Dr. Buch:
So here is an important one. Can clarithromycin still be part of our treatment regimen in 2022?

Dr. Argueta:
So the quick answer is, unfortunately, no. Clarithromycin-based triple therapy, which is made up of a proton pump inhibitors, clarithromycin, and amoxicillin, continues to be the most widely prescribed antibiotic regimen. However, while eradication rates were greater than 90% a couple of decades ago, several studies, including one from our very own institution here in Rhode Island, have found that eradication rates using a clarithromycin-based triple-therapy regimen are now well below 80%. This is largely due to rise in antibiotic resistance rates where it is estimated that more than 15% of H. pylori strains are resistant to clarithromycin. As a result, the most recent ACG guidelines for H. pylori eradication discouraged the use of clarithromycin and to really only be used if the strain is known to be sensitive to it. Instead, a Bismuth quadruple therapy containing a PPI, tetracycline, and metronidazole is now recommended as first-line empiric therapy.

Dr. Buch:
And as a quick follow-up to that, Dr. Argueta, can you share when and how you use molecular testing to determine antibiotic sensitivity?

Dr. Argueta:
So as a general rule, antibiotic resistance testing is recommended once patients have failed 2 or more empiric therapies. Traditionally, only clarithromycin-based antibiotic sensitivity were available in a limited number of hospitals or as send-outs in a small number of labs. However, given the properties of H. pylori, this process is not easy and often fails either due to specimen handling or not having a viable sample. Therefore, for several years, this precluded most gastroenterologists from obtaining resistance data. Fortunately, resistance testing has entered a new era where molecular techniques are now widely available using gastric biopsies or stool samples. This technique employs PCR-based techniques to identify gene mutations with result available between 24 and 72 hours.

Dr. Buch:
That's particularly helpful. For those just tuning in, you're listening to GI Insights on ReachMD. I'm Dr. Peter Buch, and I'm speaking with Dr. Eric Argueta about Helicobacter pylori.

So Dr. Argueta, if we continue focusing on various treatment strategies, how might the use of vonoprazan, which is a K-competitive acid secretion inhibitor, change the treatment landscape?

Dr. Argueta:
Proton pump inhibition is an essential component to H. pylori eradication and is often overlooked and may preclude a successful eradication. First, growth-dependent antibiotics, such as amoxicillin, are most effective when H. pylori is in a replicated phase. This typically occurs at a gastric pH level between 6 and 8. In the absence of sustained acid suppression, the environment becomes too acidic, and H. pylori stops replicating and antibiotics don't work appropriately. Second, decreasing gastric pH levels drastically increase the overall sustainability and concentration of antibiotics in the gastric mucosa. Therefore, as a general rule, more acid suppression generally results in better eradication rates. As such, vonoprazan is a potassium-competitive acid secretion inhibitor that provides more profound and sustained acid suppression than traditional PPIs. While yet not available in the US, a recent phase III clinical trial from the US and Europe studied vonoprazan-based regimens and found that it has achieved better eradication rates than traditional PPIs when using the same antibiotic dosage and frequency.

Dr. Buch:
And I expect that will be available in the US market fairly soon.

Dr. Argueta:
Yeah, that's the hope.

Dr. Buch:
And why is posttreatment follow-up of Helicobacter so poor? And how can we get better at that?

Dr. Argueta:
So eradication confirmation is a very important component to treating H. pylori and should always be performed following a complete antibiotic course, ideally 2 weeks off of PPI therapy. This practice is particularly important for those ethnic minority groups who are at increased risk of developing gastric cancer and are likely to benefit most from confirmed eradication. While there are a number of ways to do this, such as stool antigen testing or urea breath testing, only about 1 in 4 patients are ever retested. Some reasons that may preclude this include transition in patient care, such as a diagnosis made in the hospital to then following up in the outpatient setting or

because treatments are made between multiple providers. Other times patients simply feel better and never get post-eradication testing done. Ideally, patients who are started on treatment should be instructed, reminded, and ordered for eradication testing at the same time the antibiotics are prescribed. This can potentially be accomplished through a very dedicated posttreatment follow-up visit.

Dr. Buch:
And I think the ultimate answer here is, with helicobacter, there's risk of lymphomas and malignancies. So again, our primary care colleagues must absolutely make sure that these patients are fully treated.
Before we conclude, Dr. Argueta, are there any other insights you'd like to share with our audience today?

Dr. Argueta:
Yeah, so H. pylori eradication can sometimes be difficult. However, after a failed eradication attempt, the choice of regimen should really be tailored to the individual patient, taking into consideration the local antibiotic resistance patterns if they are available, antibiotic history, allergies, and the potential profile of side effects. In addition, equally important is addressing nondrug factors that may contribute to eradication failure, such as communication barriers and high drug cost. Finally, when the next choice is not obvious, resistance testing should be performed and regimen selection based on the results.

Dr. Buch:
These were extremely important insights. And as that brings us to the end of today's program, I want to thank my guest, Dr. Erick Argueta, for an excellent discussion. Dr. Argueta, it was a pleasure having you on the program.

Dr. Argueta:
Thank you very much for having me today.

Dr. Buch:
For ReachMD, I'm Dr. Peter Buch. To access this and other episodes in the series, visit ReachMD.com/GI-Insights, where you can Be Part of the Knowledge. Thanks for listening, and see you next time.