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Breaking Down Our Approach to Small Intestinal Bacterial Overgrowth

Dr. Buch:
Small intestinal bacterial overgrowth, or SIBO for short, has been recognized for years, yet the optimal method of diagnosis remains controversial.

You're listening to *GI Insights* on ReachMD. I'm your host, Dr. Peter Buch. And joining us today to help clear up some of that controversy is Dr. Alexander Perelman, who is a gastroenterologist at Vanguard Gastroenterology in New York and a clinical instructor at NYU Grossman School of Medicine. He's also a returning guest to *GI Insights*.

So, Dr. Perelman, welcome back to the program.

Dr. Perelman:
Thanks, Dr. Buch. I'm happy to be here, happy to chat again.

Dr Buch:
To start us off, Dr. Perelman, can you please define SIBO in general and its relationship to irritable bowel syndrome?

Dr. Perelman:
So SIBO in general, if you think about it, is sort of an evolving definition of a disease entity. The idea of SIBO—and SIBO stands for small intestinal bacterial overgrowth—is that there's a dysbiosis. So the bacteria that typically reside in the colon can migrate higher up in the small intestine and then can cause things like symptoms bloating, abdominal discomfort, sometimes diarrhea, can even lead to malnutrition in some cases.

The ideal diagnosis approach would be to sample an aspirate and culture it from the small bowel where we could say, yes, we definitely know that there are bacteria out of proportion than what should be, but really, we don't do that these days, and we really rely on breath testing. The breath testing we're using is usually a lactulose breath test or a glucose breath test where we have a person drink some of this carbohydrate, and then we're measuring hydrogen and methane levels to make the diagnosis of SIBO. Usually, we're looking for a hydrogen level greater than 20 parts per million and a change of 20 parts per million within 90 minutes of the study. And as far as methane is concerned, we usually look for a number of greater than 10 at any point of the study, which is the new sort of recommendation since the 2017 guidelines from the North American Consensus document and even the 2020 guidelines from the American College of Gastroenterology. There's a little bit of fun where we start talking about sulfur, but we are not really at that stage of our understanding to really do anything clinically relevant with it right now.

When it comes to IBS-D it's one of those situations where not every person with SIBO has IBS-D, but majority of people with IBS-D have SIBO. And what we see, about 80% of these folks will meet criteria for the diagnosis of IBS-D and concomitantly, when tested using breath testing, will also meet the cutoff points to be diagnosed with small intestinal bacterial overgrowth.

Dr. Buch:
Thank you very much. That was very insightful.

Dr. Buch:
With that background in mind, can you comment on testing and its limitations when diagnosing SIBO?

Dr. Perelman:
Absolutely. I think the limitations are pretty straightforward. As I mentioned, the culture is a procedure that requires you to do endoscopy to then try to sterilely pass a catheter into the distal part of the duodenum, so think part 3, part 4, and do a sterile aspirate that you're

going to go and culture again in a sterile fashion to try to see if you truly have the bacterial overgrowth. That's challenging. It's invasive. It's not necessarily cost-effective.

So since we're doing breath testing, we have to be mindful of all the things that impact the breath testing themselves. So we have to realize that the glucose or lactulose that we're using as the substrate at times it can reach the colon while we still think it's in the small bowel, and the reflection of the test can show us a false positive rate. So because it's an indirect test, we have to be mindful of that. We have to be mindful of factors like antibiotic use, factors like motility issues a person might have that give us false positive or false negative tests, so it's really suboptimal. I think where the future is going—and we're not there yet—is either a way to sample the contents of the small bowel directly that is less invasive than an actual endoscopic procedure or potentially thinking of things like volatile organic compounds that can be exhaled, measured using more organic chemistry techniques and try to understand if that really is a reflection of SIBO or methanogen overgrowth.

Dr. Buch:
That's great. Is PPI use related to the development of SIBO?

Dr. Perelman:
That is a great question and one that we've been trying to answer, I want to say, for decades and decades since PPIs came out. I think we may have touched on this the last time where everyone blames PPIs for everything until we actually look at the data and we don't see any. In the case of SIBO and PPI, there are some small trials. There are some limitations in methodology that show that there may be a corollary between PPIs and SIBO development, and really the thought was the higher twice-daily dosing actually had some corollary with that, but better studies, more controlled studies, really don't demonstrate that to be the case. And if you actually looked, there was really a nice study and what they did was actually deep sequencing of people who were taking high-dose PPIs and the volume that they had culture data-wise as well as the actual gene sequencing. They don't really see anything that demonstrated that, yes, PPI caused SIBO or there's any true relationship. So it still stays as unlikely but to be determined.

Dr. Buch:
And we're looking forward to that data.

For those just tuning in, you're listening to *GI Insights* on ReachMD. I'm Dr. Peter Buch, and I'm speaking with Dr. Alexander Perelman about small intestinal bacterial overgrowth, or SIBO for short.

So, Dr. Perelman, if we turn our attention to management, are we missing anything if we treat SIBO empirically?

Dr. Perelman:
Are we missing anything is potentially yes. The other question is, are we harming anything if we keep treating empirically? And so part of the thing about missing anything, if we're treating SIBO empirically, are we going for rifaximin, which is an approved nonabsorbable antibiotic that is relatively easy on the patient; it has relatively few side effects and risks; so, realistically, we may not be missing or harming all that much with that approach. The problem goes back to the methane component that I had mentioned before. And so, persons who have methane-producing organism overgrowth, they don't really respond all that well. So if we're treating empirically just with rifaximin and we don't cover the methane-producing organisms, we're missing that opportunity, and the patient may not get better or may require a secondary course of therapy. The other question that I mentioned was, are we harming anything? We may also be definitely impacting the normal biome, which we're still just starting to understand and also having some selection pressures on multidrug-resistant organisms, which we also don't want to do unless it's actually necessary.

Dr. Buch:
That's great. Thanks for that clarification. Is there a limit on how often we can treat irritable bowel syndrome with rifaximin?

Dr. Perelman:
So a little bit of a limit in terms of what the FDA says. So the FDA says you can try once and repeat 2 more times. Now, the reality is, are you actually seeing a benefit, and is that something that is worth to keep doing? So if we're talking about strictly IBS-D that we're treating, I think a couple of repetitive treatments are reasonable, but I also think about the patient. Depending on insurance coverage, it can be up to $2,000 per course of therapy. So if it worked once, I think it's reasonable to try again if they relapse in a short interval of time, but if it didn't really do all that much, I often will sit down with the patient and talk about other alternative treatment options, and we've got more for IBS-D than we used to before, so I think it's worth talking about.

Dr. Buch:
Before we conclude, Dr. Perelman, are there any other thoughts you'd like to share with our audience today?

Dr. Perelman:

Yes. I think it's important to recognize that all of the guidelines that have made a lot of headway—better diagnostic definition, better testing options and even treatment options—are wonderful for conferences, for guideline meetings and discussion, but I think it also is important to remember the patient in the clinic. And a lot of times that conversation should always circle back to the expectation of treatment and the expectation of testing and sometimes the cost associated with this entire process. So I think it's really important that we're not tying our hands with the guidelines and saying, "We absolutely must test before we treat," or if you don't have access to the testing saying, "I'm going to treat without testing," but really having that conversation with the patient saying, "Look, this is what the test will show us, this is what the treatment looks like, these are the risk benefits," and sort of helping the patient make the proper decision rather than dictating what we're going to do because this particular area is still a little bit of a gray area, and I think it's important that we are upfront about that. When we talk polypectomy, it's a polyp; you take the polyp. It's a very concrete answer. When we're talking about things that we're using indirect testing and antibiotics that we say we kind of think we know what it does, I think that's where it's important to remember the person in front of you, not just the guideline in front of you.

Dr. Buch:
That's great. And this brings us to the end of today's program. I want to thank my guest, Dr. Alexander Perelman, for an excellent discussion on small intestinal bacterial overgrowth. Dr. Perelman, it was a pleasure having you on the program today.

Dr. Perelman:
Thank you, Dr. Buch. It was a great time.

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