

Small Intestinal Bacterial Overgrowth (SIBO): An Interview with Preet Khangura, ND

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Liz Sutherland, ND, Editor-in-Chief of the *Journal of Restorative Medicine*, recently spoke with Preet Khangura, ND, who practices in Victoria, BC, Canada. Dr. Khangura is an expert in the diagnosis and treatment of small intestinal bacterial overgrowth (SIBO). He has developed treatment and prevention protocols for this condition, and offers consultations and educational seminars on the topic to healthcare providers.

LS Dr. Khangura, please tell us a bit about your background.


PK The primary focus of my practice has always been gastrointestinal health and gastrointestinal disorders. This has also translated into a strong focus in autoimmunity, because many times autoimmunity is part of a gastrointestinal disorder; for example, small intestinal bacterial overgrowth (SIBO) can actually have an autoimmune root cause. In addition, addressing hormone imbalance is a big part of my practice. As many doctors know, when the gastrointestinal system is off balance, many other systems in the body can be affected also. I have a very strong focus and expertise in SIBO. It's something I've gravitated towards for many years. I see patients with SIBO on a daily basis, and I also provide educational seminars on the subject for doctors.

LS How prevalent is SIBO?

PK It is very common. If you look at the statistics behind irritable bowel syndrome (IBS) in North America, before the criteria for diagnosis were

switched from Rome III to Rome IV (which means that now many IBS symptoms are not included), then up to 20% of North Americans could have the diagnosis of IBS. That rate has gone down now because the Rome IV criteria omit symptoms like abdominal bloating, excessive flatulence, excessive belching, and heartburn. Currently the criterion for IBS is just abdominal pain that is related to an alteration in stool quality. But there's much more to IBS than that. So if you look at the Rome III criteria whereby 20% of North Americans could have IBS, and you then look at the SIBO research, which shows anywhere from 50% to 84% of patients with IBS will test positive for SIBO, it suggests SIBO is very common. I've seen in my practice that if you treat the SIBO effectively, the IBS symptoms tend to go away. That's a correlation, but it suggests a possible causative effect.

The studies that show 50–84% of IBS patients have SIBO used the breath testing models to diagnose SIBO, but they were not using what we now consider to be the most updated laboratory thresholds. This suggests to me that the prevalence of SIBO might tend more towards 84% because there were probably a lot of people in those studies that actually did have SIBO but were not diagnosed. If those same studies were done today using current laboratory thresholds, then I think SIBO would have been detected in more subjects. The rates are very, very high. Most doctors see patients with IBS on a daily basis. A majority of those patients could very well have SIBO.

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LS Is the breath test the most accurate way to diagnose SIBO?

PK Yes. It is the most accurate non-invasive way to diagnose SIBO. When we say the breath test, we're talking about the 3-hour lactulose hydrogen and methane breath test. There are some other variations of the breath test out there, such as the glucose hydrogen and methane breath test, which is a very accurate way to diagnose SIBO. However, with the glucose solution, you can only essentially test the first one-third of the small intestines for SIBO, so you tend to get a lot of false negatives. Lactulose is a non-absorbable man-made sugar that can test the entire length of the small intestine. Something I try to educate doctors about all the time is to use the breath test to diagnose SIBO not stool testing. Stool testing should not ever be used to diagnose SIBO because results of any bacteria cultured or any PCR (polymerase chain reaction) DNA testing of bacteria in the stool is only relevant to the large intestine terrain. You cannot say because there's a certain amount of bacteria in the person's stool test, therefore they must have SIBO. You can't correlate the small intestinal terrain with the large intestine. The breath test is a very specialized provocation test where the patient is on a low fiber and low sugar diet the day before they test to starve the bacteria. Then the next morning they wake up and start the breath test. They drink the lactulose and take breath samples for about 3 hours, every 20 minutes or so, to see if there are spikes of hydrogen or methane coming out of their lungs, which the bacteria in the small intestines produce.

LS Can a patient do the breath test at home, or do they need to come into the clinic?

PK Most definitely at home. Many SIBO laboratories provide the at-home kits. The take-home kits are essentially what we call QuinTron take-home kits. These kits allow patients to do the test in the comfort of their own home, which is great, because it is a long test to complete. There are some hospitals and clinics around North America where a patient can stay for 3 hours and give samples with the help of a lab technician, however it is much more convenient to do the test at home. The patient would then send their breath-test vials back to the laboratory, where they can be analyzed quite quickly.

LS How frequently do you see patients with SIBO symptoms but a negative breath test?

PK It does happen, but this is kind of a complicated question. There definitely are patients who have the hallmark SIBO symptoms but who do not test positive. It may be that it truly is a negative test result, which means you need to start looking for other root causes. As I mentioned, SIBO is a primary root cause for a lot of prototypical IBS cases, but of course there could be other issues going on. In my experience, if a patient presents as a classic IBS case, generally the SIBO test results come back positive for either hydrogenic SIBO or methanogenic SIBO, and then I can tailor the treatment towards the specific type of SIBO.

The reason why I say it's a little complicated is because there is a third form of SIBO called hydrogen sulfide SIBO, but at this point there is no accurate breath test to diagnose that. If the primary overgrowth in the small intestine is hydrogen sulfide-producing bacteria, it will not show up on the hydrogen and methane breath test. There are, however, hallmarks to look for in the hydrogen sulfide case, such as very pungent smelling flatulence and unexplained bad breath. In addition, certain hydrogen sulfide species are correlated with the presence of autoimmune conditions. So, if a patient has, for example, rheumatoid arthritis, ankylosing spondylitis, or Sjögren's syndrome and they have the signs of hydrogen sulfide SIBO, you can assess all of this together outside of the breath test to come to a working diagnosis.

LS What's your treatment approach to SIBO?

PK This is a big topic for sure. I can spend close to 2 hours just talking about all the treatment options, both pharmaceutical and natural, because there is a lot of information available. In my opinion, though, a good deal of the information is too broad and too vague. For example, "You can just use any antimicrobial," or "You can use this antibiotic because it's the most well-researched." The first step is to eradicate the overgrowth, but SIBO is the end result of something else going wrong. Usually, what's happened is that the migrating motor complex of the intestinal tract has become weak. I will treat that after eradication is complete. For eradication, there are pharmaceutical antibiotics and natural antimicrobials that can be used. You

need to determine what the best choice is for that patient. Yes, there is very good research behind antibiotics such as rifaximin, which is probably the most well-researched antibiotic for SIBO because it's non-absorbable and is active only in the small intestine. It targets SIBO, specifically, but it's not the greatest for methanogenic bacteria, so at times you'd need to combine it with other antibiotics or antimicrobial herbs.

You need to pick the right selection of antimicrobial herbs that can potentially target hydrogen-producing bacteria, methanogenic bacteria, and hydrogen sulfide-producing bacteria if you suspect they have that form of SIBO. You can use pharmaceutical antibiotics along with the natural antimicrobial herbs, which I very often do in my practice. You can also just use natural antimicrobial herbs, as long as you pick the right ones. You can just use pharmaceuticals such as rifaximin and neomycin or rifaximin and metronidazole. There are pros and cons to all of these options, but you want to make the right selection for that specific patient, also taking factors like safety into consideration.

Now, all of that being said, you can pick all the right antimicrobial herbs and pharmaceuticals in the world for that patient, but if you do not address potential bacterial biofilm that the SIBO may have produced in the intestinal tract, none of these treatments will work. In my professional opinion, that is, by far, the number one reason why SIBO cases do not resolve. You need to disrupt biofilm in the gut. There are many ways to do that. The short answer to the best way to disrupt biofilm is to use a bismuth thiol biofilm complex. It can break down even the most extensive forms of biofilm.

LS What role does diet play in your therapeutic approach?

PK That's a great question, because there is a lot of information out there about how important the anti-SIBO diet is. An anti-SIBO diet could be something like the low FODMAP diet. The reason why the low FODMAP diet has been shown to reduce IBS symptoms, for as long as the patient's on it, is because a low FODMAP diet is very close to an anti-SIBO diet, and most patients with IBS have SIBO. On an anti-SIBO or low FODMAP style diet, the bacteria are not being fed as much of their food, which is essentially fibers and certain sugars

like lactose, fructose, and sugar alcohols, as well as oligosaccharides, such as inulin or chickpea root fiber. For sure there is a role for these diets, but what I see all the time clinically is that they only subdue symptoms for the duration that a patient is on them.

A low FODMAP diet or anti-SIBO diet is not going to get rid of the SIBO. It's not even really going to slow down its progression. In some cases in response to these diets over time, bacteria will actually produce more biofilm, in effect making it harder to treat the SIBO in the future. But there are times when dietary intervention makes sense; for example, if I know a patient has SIBO, but can't go forward with treatment at this point for some reason, then they can follow one of these diets to help subdue symptoms until we can treat it further.

There is also this idea that once the SIBO is eradicated, the patient should be on one of these strict anti-SIBO diets. In my opinion, that's not true, because if you have eradicated the SIBO, there is no reason why the patient can't have foods that are rich in fiber and maybe even some of those sugars. Remember we're talking about healthy foods like certain vegetables, fruits, nuts, and seeds. These diets can be very strict and result in the patient avoiding a lot of nutritious foods, so if we do not need to have the patient on such a strict diet, it's best not to. If the SIBO is gone, they should be able to eat those foods without presenting with symptoms. And continuing to eat those foods is not what will bring SIBO back. What will bring SIBO back in some patients is that the root cause of their developing it in the first place has still not been treated. This relates to the migrating motor complex that I mentioned earlier. We need to strengthen that action of the gut after we get rid of the SIBO.

LS I assume that would also involve treating intestinal permeability?

PK Yes. SIBO definitely can be a primary cause of intestinal permeability. The issue with that is, when someone has SIBO and it has not been treated, they probably have increased intestinal permeability, and so a vicious cycle can occur. The good news is, once you eradicate the SIBO, the body's innate ability to heal will be able to work a lot better, and therefore the intestinal tract will be able to start to heal much more effectively on its own. You can also help the patient's gut to heal by

giving to the patient agents that reduce intestinal inflammation, heal the gut lining, and improve the gut's immune system function. This will help the patient long term, especially if the SIBO and intestinal permeability have led to systemic symptoms and conditions. There is a great deal of research showing that SIBO is associated with some systemic conditions such as rosacea, interstitial cystitis, recurrent urinary tract infections, and restless legs syndrome, just to name a few.

LS From all you've said, it sounds to me like I would need to be very cautious about using prebiotics and probiotics with a patient with SIBO. Is that correct?

PK You're very much correct. This is another big topic that gets debated a lot. The truth is, while someone has SIBO, using anything that contains a lot of prebiotics, such as prebiotic-filled probiotic formulas, which have a lot of oligosaccharide and inulin fiber specifically as food for the probiotics, well this is what bacteria feed on. If a patient with SIBO takes loads of prebiotics, their SIBO symptoms can worsen because that prebiotic will feed the SIBO before it gets to the colon to feed the bacteria in the large intestine. SIBO can lead to IBS symptoms simply because of the excess fermentation in the small intestines of prebiotics, fibers, sugars, and bacterial gas production. Bacteria produce tons of gas as soon as they eat, and the small intestines were not meant for gas production. This results in the patient getting bloated, burping, having flatulence, abdominal pains, heartburn, nausea, poor bowel movements, and so on.

So yes, taking prebiotics can be a problem. Taking certain strains of probiotics can be a problem as well. Research has shown that in up to 25% of SIBO patients, it's lactobacillus species that are overgrowing. Most lactobacillus species are beneficial, as long as they get to the large intestine. If a person's intestinal tract is disordered and set

up to allow bacteria to pool in the small intestines, taking oral probiotics may make the SIBO worse. Sometimes doctors will see this when patients tell them probiotics make them feel worse, but they won't make the connection because it runs counter to our education about probiotics. If a patient ever says that, the first thing to think of is probably SIBO. Not all bacteria are created equal, of course. Bifidobacteria will get themselves to the large intestine, and will not typically propagate SIBO or make it worse. So a bifido-only probiotic is usually safe to use with SIBO patients.

LS Is there anything else you'd like to share?

PK SIBO can almost feel like this generation's new fad diagnosis, just like yeast overgrowth was some decades ago. But there is a ton of legitimate research on SIBO. It is well-proven, and is definitely not a fad. I believe it's always been there and that a lot of patients who were diagnosed with yeast overgrowth actually had SIBO, because a lot of the agents we use to kill yeast also kill bacteria. The etiology of SIBO is also well established, and relates to the migrating motor complex. All it takes is one bout of food poisoning or traveler's diarrhea to weaken the migrating motor complex and result in SIBO. I would definitely encourage doctors to look into the research. The research is there, and the information needs to get out.

LS Dr. Khangura, thank you so much for this fascinating and lucid interview on a very complex topic.

PK You're very welcome.

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Dr. Khangura wishes to disclose that he is an owner of SIBO Diagnostics Laboratory in Victoria, BC.