

Gut Treatment Protocols: SIBO, Part 3

As I mentioned a few slides back, we've gone back and forth with including PHGG in our protocols. And as of right now, we currently don't include it because we really weren't seeing that much benefit. The study I mentioned that originally got us on the track of adding PHGG showed that 77 patients who were treated for SIBO were randomized into two groups. One [group] took rifaximin at 1,200 milligrams a day for 10 days, and the other took the same dose of rifaximin but also took 5 grams per day of [PHGG]. The eradication rate for SIBO in the patients who only took rifaximin were 62 percent vs. 87 percent for those who took rifaximin and PHGG. You can see it's a pretty compelling difference, a 25 percent increase in efficacy, and that's what led us to start using PHGG in the protocols.



Our hypothesis was based on the fact that **antibiotics** act only on intestinal bacteria, but **do not solve the conditions predisposing to SIBO.**

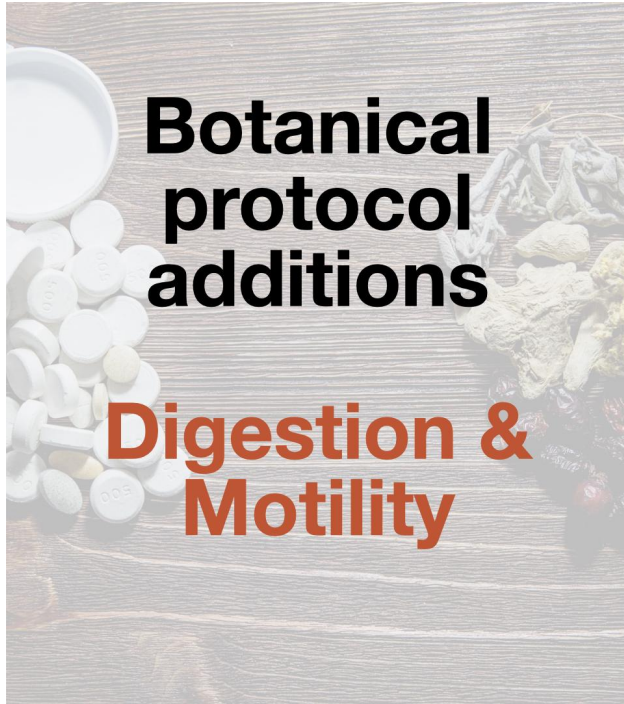
Furnari et al. Aliment Pharmacol Ther. 2010 Oct;32(8):1000-6

This is a quote from the author of that study, and they said that “our hypothesis was based on the fact that antibiotics act only on intestinal bacteria but do not solve the conditions predisposing to SIBO.” One of those conditions is impaired gut motility, which we're going to talk a little bit more about later on in this presentation, and that creates a more favorable environment for SIBO. PHGG has been shown to improve motility. Dr. Pimentel believes that—which I'm going to link to the podcast that Chris did with [Dr.] Pimentel, so you can listen to that in a little bit more depth—rifaximin works by inhibiting cell division. That's how a lot of antibiotics work. And if the patient is not eating sufficient fiber during treatment, the bacteria go dormant and they stop

dividing. They go into a survival mode, where they go into hiding more or less. This can also happen on a low-FODMAP [(fermentable oligosaccharides, disaccharides, monosaccharides and polyols)] diet, which a lot of patients are advised to do during treatment. And we used to advise that ourselves because low-FODMAP diets will relieve symptoms and not feed the bacteria, but what happens is those bacteria go dormant and they stop dividing. And then rifaximin or other antimicrobials may not work as well because the bacteria in this dormant state are much more difficult to kill by an antimicrobial that works by inhibiting cell division. Dr. Pimentel believes that [PHGG] may encourage cell division by providing a food source for the bacteria and thus make the treatment more effective, and that's why he doesn't generally recommend low-FODMAP diets during antimicrobial treatments for SIBO. We've also embraced that recommendation and no longer suggest [a] low-FODMAP diet as part of the treatment protocol. I think [it] can be helpful to prevent recurrence and maybe for some symptom management and pre-symptomatic patients, but I haven't found [it] to be generally a good idea while you're treating SIBO with antimicrobials.

This may all sound a little confusing since there are differing opinions of whether or not to include PHGG or prebiotic fiber [in] your treatment protocols for SIBO, and all I can do is share with you what we've seen in practice. Your patient population may be different than ours, perhaps, and it's a pretty compelling story, but I have found that omitting prebiotics from a treatment protocol tends to be better tolerated and works better for most people. I know this can also be tricky because we know that there tend to be [fewer] short-chain fatty acid producers in patients with SIBO, and while we can't necessarily sample the small intestine microbiome for every patient, some [patients] are using the stool test results to get a general sense of population ratios. So when you have a patient with SIBO and low short-chain fatty acid levels on a stool test, you may consider adding prebiotic fiber. And if that's the case, then I generally recommend PHGG as the first option because I think it does tend to be better tolerated as a prebiotic fiber in those particular patients. And I will often introduce that prebiotic fiber, if I'm going to, halfway through the protocol. I let people get ramped up and get stable on the core protocol supplements, and then [I'll] maybe add the prebiotic fiber if there's a reason.

Okay. Here are some additions and customizations that you can make to the core botanical protocol that we talked about. And these are all dependent on the patient's particular presentation, but the list here mostly focuses on digestion and motility support.



Iberogast (Tribute Pharmaceuticals in the U.S./ Can.): prokinetic; contains 9 botanical “bitters” that stimulate bile production and motility. Can be helpful for gas, diarrhea, nausea, and dyspepsia.

MotilPro (Pure Encapsulations): prokinetic containing 5-HTP, acetyl-L-carnitine, vitamin B6, and ginger to help support motility

Betaine HCL with pepsin (many brands): hydrochloric acid (HCL) supplement with pepsin; HCL and pepsin help with protein digestion, which is often impaired in SIBO patients

Digestive enzymes (many brands): helps with the breakdown of protein, carbs, and fat; can be used with patients with severe gas, bloating, etc.

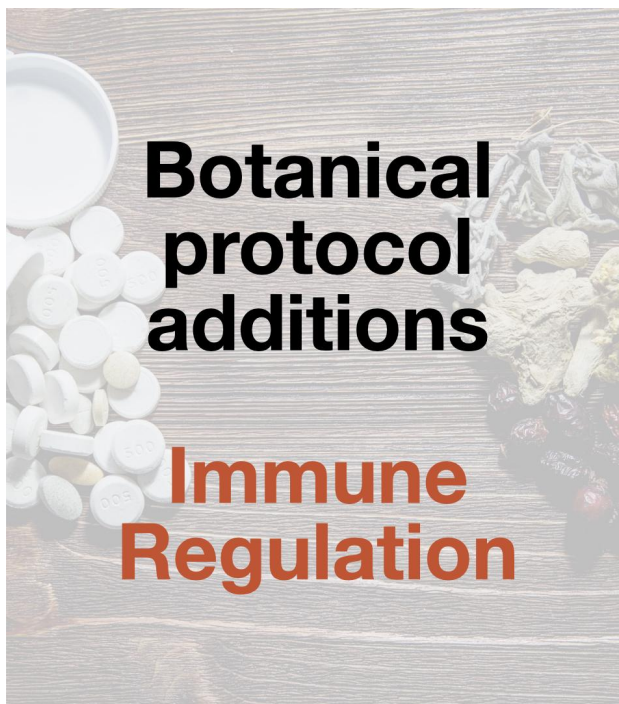
PC (Seeking Health/Body Bio): phosphatidylcholine for patients with fat malabsorption and impaired bile metabolism.

The first one's called Iberogast, and this is a blend of nine botanical bitters that stimulate bile production and motility. And it's been used in Europe extensively for 45 years, [it's been] very well studied, and it is a prokinetic, so it improves intestinal motility, possibly stimulating the migrating motor complex [(MMC)], as well. Patients who have constipation [tend to use it] because constipation's a big risk factor for SIBO recurrence, and I think it can improve the treatment efficacy primarily by that [MMC] stimulation, which we know can also be an underlying cause of SIBO and IBS, as we discussed when we reviewed the ibs-smart test. We also use it in patients who have significant gas, bloating, or diarrhea because it tends to help a lot with that in addition to nausea and dyspepsia. It's also safe in pregnancy and for children. And there [have] been some more recent concerns with Iberogast causing elevated [liver function tests] (LFTs), although I have not seen that in clinic. I think it's worth keeping in mind if you already have someone dealing with liver dysfunction.

The second supplement is called MotilPro, which is from Pure Encapsulations. It also has prokinetic effects, so it stimulates gut motility, but it does it in a different way than Iberogast. MotilPro contains 5-HTP, which is a precursor to serotonin, and serotonin stimulates gut motility. It's a neurotransmitter, so you're probably familiar with it from discussions about depression and the idea that depression is caused by a serotonin deficiency, which is, by the way, probably false. But that's another discussion for another time. It also has acetyl L-carnitine, [vitamin] B6, and ginger. So if the patient's gut motility issues are due to low serotonin in the gut, and there's 400

times more serotonin than there is in the brain, then MotilPro can be really helpful. But if their motility issues are not due to serotonin, it may not be as helpful for much, at least in my experience. If I had to choose only one prokinetic to use in a treatment, it would be Iberogast. But some patients respond very well to MotilPro. Ginger is gastroprotective. It helps with nausea and is anti-inflammatory. [Use] some caution with people with [gastroesophageal reflux disease] (GERD), as they could experience some burning sensation from the ginger. And just a reminder to check out the preferred supplement list for alternatives.

Then we also have betaine hydrochloric acid with pepsin. This is stomach acid. HCL is stomach acid, as you know by now, and pepsin is an enzyme that helps with protein digestion, which is often impaired in [patients with] SIBO. So I don't know that this helps the treatment result per se, but it can certainly make patients more comfortable and help with their symptoms while they're doing it. You may also have a stool test that confirms impaired digestion that would further support this addition. [The] same is true for digestive enzymes. They help with the breakdown of protein, carbohydrates, and fats and can be used with patients with severe gas and bloating who really need some extra support while you're doing the treatment. The last supplement that we might consider adding is phosphatidylcholine [PC], and we use this for patients with fat malabsorption and impaired bile metabolism because phosphatidylcholine is a really important nutrient for biosynthesis and metabolism.

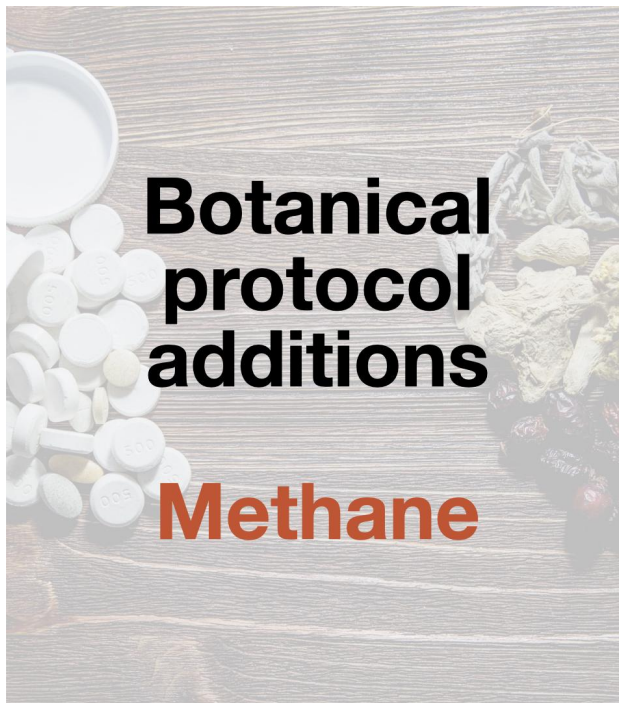


Serum-derived bovine immunoglobulins (SBI Protect or MegalgG2000): dairy-free immunoglobulin concentrate that supports healthy digestion and healthy gut barrier function; it is anti-inflammatory and protective.

ProButyrate (Tesseract): essential gut nutrient; helpful for most GI disorders and symptoms like bloating and gas. Tesseract is a butyric acid supplement with a delivery system to offer higher bioavailability to the gut mucosa; it is anti-inflammatory and immune regulatory.

[In] the next category for possible additions or immune regulatory support, the first product is serum-derived bovine immunoglobulins. There are lots of brands out there, but we generally use either Ortho Molecular Labs or Microbiome Labs. For vegetarians, there is [a vegetarian] intestinal support formula. In a study by [Dr. Lenny] Weinstock [that] looked at patients [who] were diagnosed with SIBO, IBS mixed, or [IBS-]D, or both, and experienced refractory IBS and SIBO symptoms, they were offered a few different treatments through a double-blind study. Those who didn't respond to any treatment initially were given immunoglobulins, and there was a 75 percent response rate in that treatment-resistant group. I think the impact of the immunoglobulins in IBS and SIBO [is] likely linked to these formulas binding to irritants, like bacteria and toxins, stopping the cycle of inflammation and irritation, and allowing the interstitial cycles of the Cajal cells and other tissues in the gut to heal, thus leading to improved symptoms and better outcomes. There are a number of studies that report this benefit, and I have found it myself to be pretty helpful in patients [who] don't respond to the first round or two of treatment. I'll sometimes even add this into the core protocol if I suspect there is some immune dysregulation happening. The other product I may add to the core protocol is butyrate. You likely know that butyrate is an important short-chain fatty acid that has been connected to anti-inflammatory and intestinal immune regulatory effects of the gut mucosa. We generally like to use Tesseract's ProButyrate product because of its unique delivery system to create higher bioavailability to the gut mucosa.

For intestinal methanogen overgrowth [(IMO)], we'll often adjust the core protocol slightly to address the methanogens directly.



Atrantil: a blend of polyphenols that addresses gut bacteria; effective for bloating and abdominal discomfort and supports overall digestive health.

Allimax Pro (Allimax Nutraceuticals): stabilized form of allicin; potent antimicrobial.

Ideal Bowel Support LP299V (Jarrow Formulas): probiotic that contains *L. plantarum* 299v; it resists stomach acid and bile salts, adheres to gut lining, promotes intestinal health and function, and may help with constipation.

***L. reuteri* (BioGaia Gastrus):** probiotic that suppresses methanogen activity; it improves symptoms of constipation.

First, we have Atrantil, a botanical supplement created by Dr. Ken Brown, a renowned functional gastroenterologist. This is a combination of peppermint, which is a soothing agent to calm down digestive orders; quebracho colorado that acts like a sponge and soaks up gas and weakens the cell wall killing the gut microorganisms responsible for constipation, gas, and diarrhea; and then *Aesculus hippocastanum*, a.k.a. conker tree or horse chestnut, [which] kills bacteria and continues the work of the quebracho by binding to the enzyme in the weakened bacteria to shut off the production of gases and bring gut relief. This product is backed by a clinical trial, which is nice, that found significant improvements in several measurements of gut health after taking this for [just] two weeks. Next on the list is Allimax Pro; [it] uses a stabilized form of allicin, which is extracted from raw garlic using a controlled extraction process that dissolves the pure allicin in water. It's a pretty potent antimicrobial by inhibiting DNA gyrase activity in bacteria. And you may be thinking, why would we be giving allicin if it's from garlic? That is generally not tolerated by [patients with] SIBO. I have generally found this product to be well-tolerated because it isn't made from garlic extract or other garlic products that contain polysaccharides, which act as prebiotics and aggravate digestive discomfort. Studies have reported allicin to specifically be effective in reducing cyanogenesis.

Ideal Bowel Support from Jarrow Formulas is the third methane overgrowth specific add-on consideration. It's a probiotic containing *Lactobacillus plantarum* 299v. Studies have shown it to adhere to gut lining after 10 days of supplementation, reduce symptoms of abdominal pain and boosting in IBS symptoms, and prevent bacterial translocation. And I have seen this work well for many of my constipated patients in practice. Last is another probiotic, *L. reuteri* probiotic. It has been shown to suppress the methanogen activity and improve symptoms of constipation. In addition, there has also been some evidence that *L. reuteri* exhibits antifungal properties and reduces proinflammatory cytokines.

I want to talk about Atrantil a little bit more. Dr. Kenneth Brown created this product, and it was involved in the early rifaximin trials when he recognized that rifaximin alone doesn't work well for [IMO], and even rifaximin plus neomycin or metronidazole doesn't work that great either. So he studied the literature to find some plant extracts that might have [an] effect against methane. Atrantil is supported by two peer-reviewed studies; we'll put the links in the resources section.

I often use Atrantil in combination with other treatments for [IMO], as you saw with the methane additions to the core protocol. I don't know of a study that has looked at concurrent use of rifaximin plus Atrantil, but I use this in practice when either someone does not want to take neomycin or I'm combining prescription of botanical protocols and have found it to increase [the]

effectiveness of the protocol. Note that Atrantil can be empirically used for IBS with bloating and constipation, even when SIBO isn't present; we'll talk about this a little bit more later. It can also be used as a maintenance dose of one capsule, two to three times a day, to prevent recurrence of [IMO]. And also, note that the instructions for Atrantil say not to take [it] with probiotics. I think this comes from that early bias against probiotics in SIBO treatment, but, as I've mentioned, the few studies that we do have that looked at probiotic use during SIBO treatment suggest they are more effective.

Chris also did a podcast a while back with Dr. Brown, discussing Atrantil in more detail and talking about some of these questions. So I'll put a link for that in the resources section, as well.