KRESSER INSTITUTE FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

Gut: Treatment Protocols - SIBO, Part 6

Re-testing is **crucial to success** of treatment

Symptom **improvement** occurs before normalization of breath test

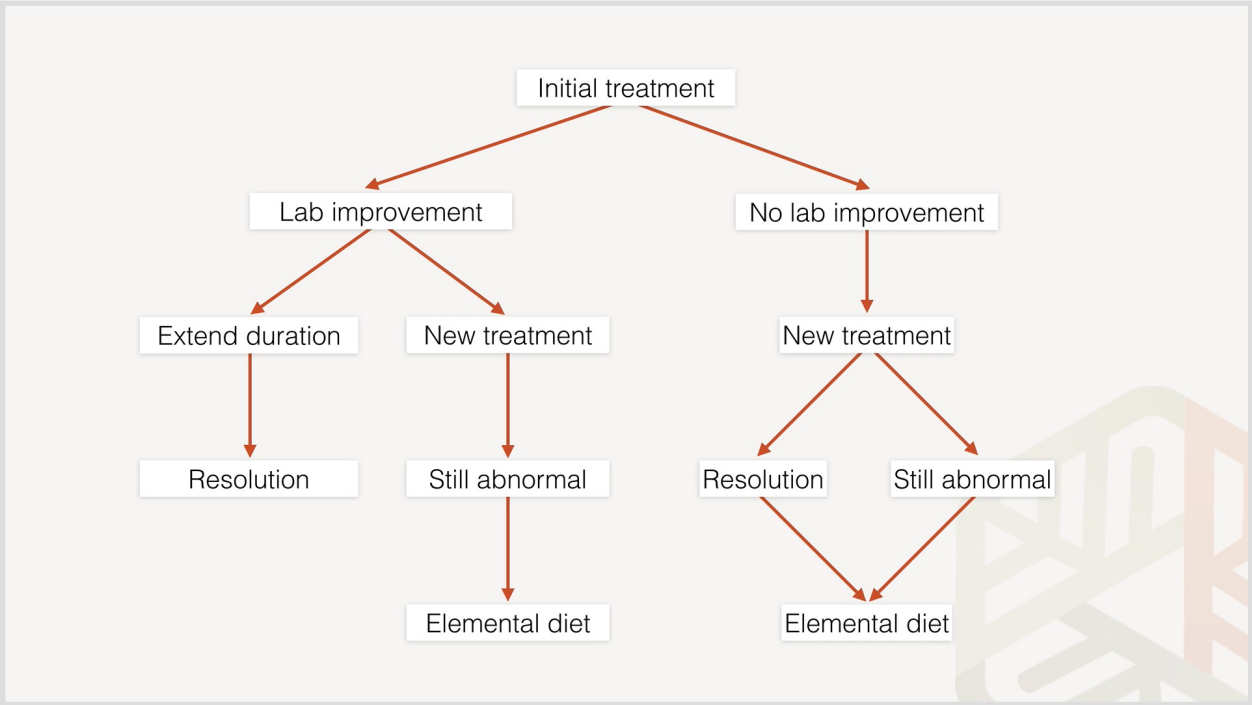
If patient doesn't improve from treatment, doesn't mean treatment didn't work

Ask patient to **stop** antimicrobials for at least **2 weeks before re-test**

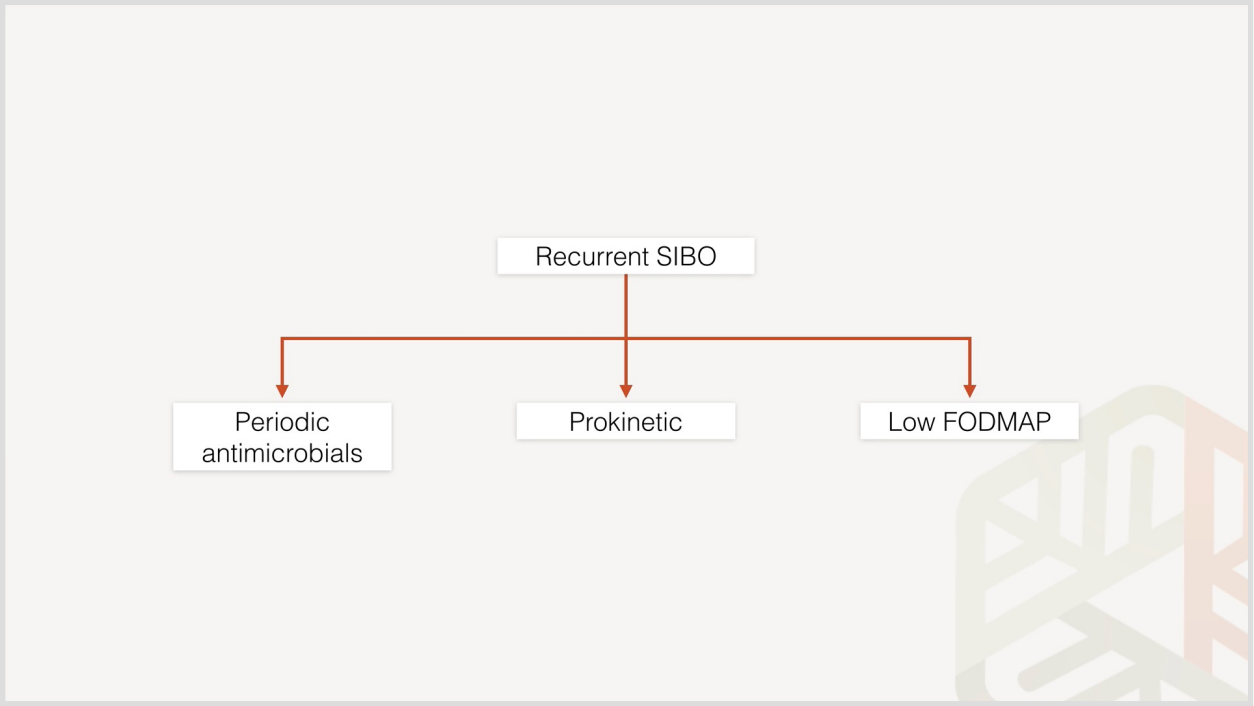
We've talked about specific treatment for SIBO as well as what to eat during treatment, and the next step is to retest. This is crucial, as I mentioned earlier; we can't know if the treatment was successful without it, and you need to remember that symptom improvement occurs before the breath test normalizes. If you have the patient stop the treatment when symptoms improve, there's a very high likelihood of recurrence. Also, if the patient doesn't improve from treatment, it doesn't mean the treatment didn't work. It could mean it did work, but the symptoms they were experiencing, despite being symptoms consistent with SIBO, were not actually related to SIBO. We know that 20 percent or more of controls that don't have symptoms have SIBO, so it's possible that if someone has SIBO, it may not actually be causing their symptoms, so the key principle which we've talked about before is "test, don't guess," and this is what separates a good practitioner from a mediocre practitioner. In general, we recommend retesting two weeks after the end of treatment, and during that period, patients should not take any antimicrobials. Some sources say don't take any probiotics during that period of time. I'm not sure about that, and in some cases, we've recommended that, and if you want to be safe, it's probably good to stop those as well.

What happens if the test is still positive? Like I said, the recurrence rate ranges from 44 to 50 percent; that probably has a lot to do with not using doses that are high enough or durations that are high enough. One study found a recurrence of SIBO of 13 percent at three months post-treatment, 28 percent at six months, and 44 percent at nine months. The major caveats of that study, though, were that the probability of recurrence was increased with older age,

constipation, a history of appendectomy, and chronic PPI use. As I said before, SIBO is as much a symptom as it is a cause. The authors themselves said that without correcting potential mechanisms that lead to bacterial colonization of the small bowel, SIBO will recur, very important point. Second is that patients in these studies were not using the adjunctive therapies we've discussed, like biofilm disruptors, probiotics, prebiotics, etc. And empirically, in my patient population, recurrence is much lower than 45 percent at nine months. Nevertheless, the key takeaway here is that you have to look at SIBO from a functional medicine perspective, and if it continues to recur, it probably has to do with an underlying mechanism that has not been corrected.



If you do have a patient with follow-up tests that are positive, here are some things to consider. If it's the first follow-up test, try a different treatment: if you did botanical treatment, you could do the pharmaceutical treatment with rifaximin; if you did rifaximin, you could do botanicals; and you could also consider extending the duration depending on the test results. If the test results were mild, a shorter duration is fine, but if they were elevated, you might try a longer duration. If that fails with the second follow-up test, you may consider an elemental diet, if the patient is willing. If the patient repeatedly tests positive, you need to start considering potential underlying mechanisms that you may have missed, including gut dysbiosis, parasites, infections, things like heavy metal toxicity or mold, biotoxins, or other chronic infections like tick-borne illness or gut-brain axis dysfunction due to HPA axis dysregulation or stress. So this algorithm that I'm showing here on the slide, we'll provide a handout for you so you don't need to worry about copying it down.



You've probably already gotten this sense from watching this presentation, but if you haven't, I'll just say it more clearly. SIBO is not easy to treat. We often see cases that recur, or cases that don't improve at all despite multiple different treatments, botanicals, diet, rifaximin, and/or neomycin and eating an elemental diet. In those cases, I find it very difficult to justify just repeating the same treatments over and over with little improvement to the patient and perhaps some risk. We can't ignore the gut-brain connection and the fact that our gut is essentially a network of nerves.

Through research in neuroplasticity over the past several years, we know that neurons that fire together wire together, which means the more you use a certain set or pathway of neural connections, the stronger they get. We know that the nervous system essentially functions as a pattern-based system. If we experience any kind of trauma at any point in our life, and it doesn't have to be emotional or psychological, it could have been a physical trauma such as surgery, a car accident. It could be a microbial trauma such as an infection. It could be a chemical trauma such as exposure to a toxin. That usually leads to a fight-or-flight response, which is protective in the short-term, but if it gets stuck, which it often does, it can become maladaptive over the long term.

I think that what is happening with many patients who have recurring SIBO or other recurring gut issues, their nervous system is stuck. They had a kind of limbic system injury at some point in the past, and their nervous system is stuck in this pattern of unhealthy function, and that creates a hospitable environment for bacterial overgrowth or the presence of other pathogens. If you only treat the bacterial overgrowth or the pathogens themselves without addressing that underlying pattern that is leading to that environment, then you might get some short-term

results, but you'll see a lot of recurrence, or you might not even get the short-term results. In these cases, we've been referring patients to the dynamic neural retraining system program, or DNRS, which offers patients a way of addressing that limbic system injury and essentially reprogramming their brain and nervous system. We've seen some pretty remarkable results in the case of the patients who stick to this program and whose symptoms began or at least exacerbated and intensified after some kind of trauma. Again, using a very inclusive definition of trauma, not just emotional or psychological, but physical, microbial, environmental, or toxic.

If you've ruled out all of the causes of SIBO that we talked about, or the underlying mechanism cannot be addressed, for example if a patient has a disease or a mechanical problem that impairs gut motility and that's not a reversible condition, the patient may need periodic retreatment with botanical or pharmaceutical protocols. Now, as I just said on the last slide, I would be cautious about assuming this unless you really have explored other possibilities like addressing the deeper seated nervous system patterns in patients with something like the dynamic neural retraining system or other methods that are based in neuroplasticity. But if that has been done and the patient is still struggling, you may need to retreat. I think that botanicals are often the best option here such as the core protocol and perhaps adding Atrantil, especially if they have methane predominant SIBO and constipation, because of the lower risk of depleting the gut flora and potential complications. Then there are additional steps that you can take to reduce the likelihood of recurrence.

The first is using a prokinetic, which is an agent that increases gut motility. One theory on why recurrence recurs is that SIBO involves a dysfunction of the migrating motor complex, which is a cleansing function of the intestine, which leads then to bacterial overgrowth, and prokinetics stimulate the migrating motor complex and can counteract that tendency. Botanical options for this include Iberogast, which has a clinically proven effect. It's been used in Europe for decades and then MotilPro, which contains 5-HTP an important neurotransmitter in the gut that affects motility. Then pharmaceutical options include a low dose of erythromycin, 50 mg, or low-dose naltrexone, although those have fallen out of favor to some degree because studies have shown at least with the case of erythromycin that they're not very effective. Low-dose naltrexone, although it is very effective for autoimmune conditions and has been used successfully in a number of different contexts, we have not found it to be especially effective as a prokinetic.

The recommended course for prokinetics if you choose to use them is three to six months, but some patients may need them ongoing, and in that case, I would definitely lean towards the botanical options. Now, keep in mind again that this is just one way of addressing the dysfunction of the migrating motor complex. The migrating motor complex is again a neurological system. If the patient has this limbic system injury or a hardwired nervous system pattern, or they're experiencing a lot of stress, that's going to directly affect the nervous system. Using different entry points for treating that, body-based somatic therapies such as somatic experiencing or Feldenkrais, things like the DNRS system that I talked about, those are probably more effective in my experience than the options that we're talking about on this slide,

but they do require a much higher level of commitment by the patient. I'm presenting all of these options so that you can make the appropriate choice depending on your patient.

Botanical protocol for **children**

Therapeutic agent	Dosage
Biocidin (Bio-Botanical Research)	1 drop/10 lbs/d body weight in 2–3 doses 30 min before meals
CSA tincture (Woodland Essence)	2 drops/10 lbs/d body weight in 2–3 doses 30 min before meals
Lauricidin	Start with 1-3 pellets a day; increase to 8 pellets/10 lbs/d body weight in 2–3 doses
TerraFlora	1/2 capsule taken at lunch or before bed; can be mixed with food or beverage
Atrantil (optional)	Only for kids that can swallow capsules; Ages 7-11 1 cap BID; ages 12-17 1 cap TID; >18 adult dose
Lactobacillus plantarum (optional)	1/4–1/2 capsule taken at lunch or before bed; can be mixed
Iberogast (optional)	3–6 y.o.: 10 drops TID; 6–12 y.o.: 15 drops TID; >12 y.o.: adult dose (20 drops TID); before meals

Here's the botanical protocol I use with kids who are not able to swallow pills. Biocidin is a nice antimicrobial botanical product. It's in liquid form. One drop per 10 pounds of body weight in two to three doses 30 minutes before meals for that. CSA tincture. CSA stands for Cryptolepis, Sida, and Alchornea. These are pretty potent antimicrobial herbs. You don't need to use both of these. Biocidin, I would use in more gentle approaches, and CSA, you could use in more severe cases. The dose there is two drops per 10 pounds per day of body weight in two to three doses 30 minutes before meals. Lauricidin, you're already familiar with. That has small pellets. So often even young kids can handle that, especially if you mix it with food. We start with one to three pellets a day increased to eight pellets per 10 pounds of body weight per day in two or three doses.

Terraflora: One-half capsule taken at lunch or before bed. Open the capsule and mix that with food. It's pretty tasteless, so kids are not really going to notice. Atrantil is only for kids who can swallow capsules because it's got herbs that irritate the esophagus. Ages 7 to 11, the dose would be one cap twice a day. Ages 12 to 17, the dose could be one cap three times a day. Then over 18, it would just be the full adult dose. Lactobacillus plantarum, one-quarter to one-half capsule taken at lunch or before bed. That can be mixed with food. Iberogast is a liquid, so even young kids can take it. Three to 6-year-olds, 10 drops three times a day. Six to 12-year-olds, 15 drops three times a day. Over 12-year-olds get the adult dose of 20 drops three times a

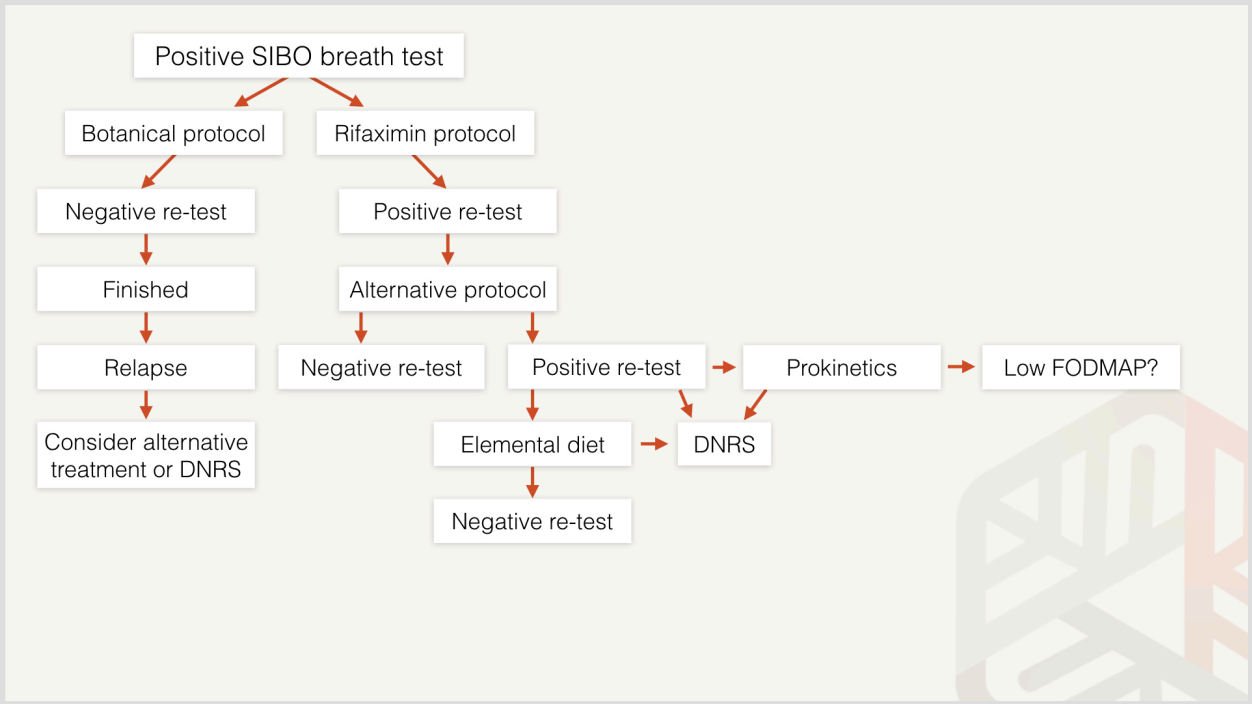
day. It is best to take a little bit before meals. Just another reminder with Atrantil. The peppermint and other ingredients are very irritating to the esophagus, so do not dump that into food for kids, and I wouldn't even recommend using a capsule maker unless you get the enteric-coated capsules. I haven't been able to find small, empty enteric-coated capsules at size three. I have found size two, but those are only sold in bulk at $150, so it's probably best to avoid Atrantil until a child is old enough to swallow those capsules.

Rifaximin protocol for **children**

Therapeutic agent	Dosage
Rifaximin	200 mg TID or 10-30 mg/kg/d of body weight; duration depends on LBT results
Lauricidin	Start with 1-3 pellets a day; increase to 8 pellets/10 lbs/d body weight in 2–3 doses
Atrantil (optional)	Only for kids that can swallow capsules; Ages 7-11 1 cap BID; ages 12-17 1 cap TID; >18 adult dose
Lactobacillus plantarum (optional)	1/4–1/2 capsule taken at lunch or before bed; can be mixed
Iberogast (optional)	3–6 y.o.: 10 drops TID; 6–12 y.o.: 15 drops TID; >12 y.o.: adult dose (20 drops TID); before meals

Then, here's the Rifaximin protocol for children. So, Rifaximin is typically dosed at 200 mg 3 times a day or 10-30 mg/kg per day of body weight and the duration would depend on lactulose breath test results and then we'll typically add Lauricidin, probiotics, Antranil or Lactobacillus plantarum. Atrantil would be optional if methane is present, same with Lactobacillus plantarum and Iberogast.

One thing I will note is that kids seem to respond faster and this is true for both the botanical protocol and the Rifaximin protocol, so we tend to use a shorter duration of each. The Rifaximin protocol might be 7 days, maybe the botanical protocol will be 2 weeks compared to adults which, as you know, can range from anywhere from 30 days to even 90 days, so keep that in mind. When you're treating with kids, we tend to treat shorter and retest sooner and make adjustments more quickly than we would with adults.



Here's the treatment algorithm for SIBO based on what we've discussed, and it will be included in the handout for you. We also will have patient handouts for the botanical and rifaximin protocols. Then the microbial reset diet, or MRD as we call it, which combines the low-FODMAP and low-fermentation potential diets. Then the Paleo reset diet. At the top, you have a positive SIBO breath test, and you can choose botanical or rifaximin protocol depending on what is best for the patient. If there is a negative retest, you're finished. If there's a positive retest, you can do an alternative protocol. If you did a botanical protocol, you can either do the pharmaceutical protocol, or you can do a different botanical protocol or just another round. If it's still positive after that, you might consider something like an elemental diet. Then if it is still positive, you might consider prokinetics, DNRS, or certainly more investigation into the other potential underlying causes of SIBO that we have talked about.