KRESSER INSTITUTE FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

Gut Treatment Protocols: Dysbiosis and Parasites, Part 1

Hey, everybody. We're going to move on to talking about treatment protocols for things like dysbiosis or disrupted gut microbiome, fungal overgrowth, parasites, GERD, IBD, IBS, etc. We've covered SIBO so far, and now it's time to jump into these other categories.

As you'll see, there are a lot of similarities in the treatment of these conditions from a botanical or nutraceutical perspective. Drugs usually have activity against one or maybe two classes of pathogens. For example, antibiotics, some antibiotics at least, work against bacteria and parasites, but they wouldn't work against fungi. Likewise, antifungals don't tend to work against bacteria or parasites, but botanicals often have activity against multiple classes of pathogens. The core botanical protocol we talked about in the SIBO treatment would also have activity against fungi and parasites, as you'll see. Let's start by talking about protocols for dysbiosis and fungal overgrowth.

Dysbiosis may result from overgrowth of commensals. Those are bacteria that are normal residents of the digestive tract, or from pathogenic bacteria or yeast that don't typically inhabit the gastrointestinal tract. Remember, the two-stage treatment principle. The first stage is to eradicate or reduce pathology or pathological organisms, and then the second stage is to restore a healthy gut microbiome. In most cases of dysbiosis, except significant fungal overgrowth, we would typically do a short period of antimicrobials followed by a more significant focus on restoring a healthy gut microbiome. The reason for this is that with dysbiosis the issue isn't necessarily the overgrowth of pathogens or the presence of pathogens, although that is one factor. The issue is more often the lack of beneficial microorganisms that can protect against the overgrowth of commensal bacteria or the invasion of pathogenic organisms.

Botanical protocol for dysbiosis & mild fungal overgrowth

Nutreceutical	Dosage
GI Synergy	1 packet BID with breakfast and dinner
Lauricidin	1 scoop TID with each meal
Interfase Plus	3-4 capsules BID on empty stomach
SEED Daily Synbiotic	2 capsules at bedtime
TerraFlora	One capsule with lunch

Here is our core protocol for dysbiosis and mild fungal overgrowth. It should look familiar: GI Synergy, Lauricidin, Interfase Plus. We will use Seed daily synbiotic, which is a great new, at least at the time of this recording, probiotic that contains several evidence-based lactic acid strains of bacteria, some of which are very effective in terms of antimicrobial properties. It has a unique delivery system that allows it to survive the stomach acid and escape digestion in the small intestine and make it all the way to the large intestine where it belongs, where the bacteria belongs. It is not only more effective, it is often better tolerated. Terraflora is a combination of soil-based organisms, bacillus species probiotics. Bacillus species has some unique antimicrobial properties, so that is why we include these in the antimicrobial protocol.

We usually do this protocol for between 30 and 60 days depending on the severity of the dysbiosis and mild fungal overgrowth, and then we move into the second phase, which is restoring a healthy gut ecosystem.

Additions for moderate to severe fungal overgrowth

Nutreceutical	Dosage
A-FNG (Byron White Formulas)	Slowly build to 10 drops daily w/meals, as tolerated
Biotin	5 mg (5,000 mcg) per day with meals
Molybdenum	200 mcg TID with meals
Activated charcoal (or PectaSol if patient is constipated)	2-6 capsules taken away from other medications and food (or 2-4 capsules PectaSol)

If fungal overgrowth is moderate or severe, you can make the additions. A-FNG is an antifungal botanical formula from Byron White. It tends to work very well even in recalcitrant cases. However, it is extremely potent, so it is always a good idea to start slowly with just one drop a day and then build up to a total of five drops twice a day. That would be a good dose for most people, if it is well tolerated, and the patient is doing well with it. Then, you can consider increasing to a total dose of 30 drops a day divided into two doses, but in my experience, it is quite rare for someone to be able to tolerate that strong of a dose.

Biotin binds to arabinose, which is a sugar produced by yeast. Then, biotin prevents arabinose from forming pentosidine. Pentosidine depletes lysine, which decreases the ability to clear neural fibrillary tangles, which we see in Alzheimer's disease, and stimulate the microglia. It may damage myelin, and it may cause autoimmune reactions to dysfunctional proteins. Biotin is also antifungal itself when it is used at higher doses of 5 mg per day. One thing to be aware of with biotin is it can interfere with serum lab testing, particularly with thyroid hormone tests. If your patient is taking thyroid hormones, and they need to get a thyroid panel, make sure that they are not taking biotin a few days before the blood test because it can interfere with the results.

Molybdenum assists in the conversion of acetaldehyde to acetic acid. Acetaldehyde blocks B6 from interacting with biochemical enzymes, which can react with neurotransmitters such as dopamine and serotonin, and it accumulates in the tissue and causes pain and inflammation.

Activated charcoal binds to fungal cell wall toxins and helps with detox. If the patient is constipated, you might consider using citrus pectin. PectaSol is one brand instead because activated charcoal can cause constipation. The dose for molybdenum is 200 mcg three times a day with meals, and for charcoal, it is kind of as needed and tolerated but two to six capsules taken

away from other medications because charcoal can interfere with the absorption of other medications. Also take it away from food. Then, two to four capsules of PectaSol or citrus pectin.

What about medications to treat fungal overgrowth? Some practitioners recommend an extensive protocol. They sometimes call it the "antifungal hit parade," involving several different medications used in rotation such as nystatin, Diflucan, amphotericin B or ampho B, Nizoral, Sporanox, and Lamisil. I recognize that that can be helpful in some cases, and some patients may need a more aggressive approach, but I do have some serious reservations about protocols like this.

First, there's not much support in the scientific literature for the concept of fungal overgrowth being a major cause of symptoms in immunocompetent patients. I do believe that it can cause problems, but I see it in an overall context of dysbiosis. Without any research confirming this mechanism, I'm nervous about the idea of using tons of powerful antifungal drugs with known side effects including hepatotoxicity and liver toxicity to treat it.

Second, though nystatin is generally well tolerated and fairly safe, other antifungal drugs are potentially dangerous, especially to the liver, like I just said, and you have to monitor liver function because of this. Amphotericin B, for example, or ampho B, is not systemically absorbed, but it has a reputation in the medical community for being a particularly nasty drug. In fact, some clinicians refer to it as "ampho-terrible" instead of amphotericin.

Third, a paper published in 2015 in the Journal of Medical Chemistry found that many antifungal drugs are not as efficacious as we've been led to believe. So, for these reasons, we tend to stick with botanicals and then aggressively rebuild the gut with probiotics and prebiotics, which, of course, has an antifungal effect, and that's something to keep in mind. In virtually all cases I've seen, this reduces indicators of fungal overgrowth on the stool test and organic acids urine test.

As far as diet goes, you'll often see very strict anti-candida diets recommended, which contain basically no carbohydrate at all, not even things like carrots or red peppers, no yeast of any kind, etc. Not only do I not think this approach is necessary for addressing dysbiosis and fungal overgrowth, it may even be counterproductive. Some research indicates that yeast can thrive on ketones, so a very low-carbohydrate diet like this would be likely to produce ketones, and it could explain why we often don't see patients getting better on these diets. We recommend in our clinic a basic Paleo reset type of diet for fungal overgrowth, just like we do with SIBO. That said, some patients with fungal overgrowth do seem to react in particular to starchy plants, things like sweet potatoes, yuca, taro, potatoes, etc., so you may have to temporarily limit those during treatment.

For severe dysbiosis due to pathogenic bacteria that doesn't respond to botanical protocol, one thing you could consider is a course of rifaximin. This is entirely empirical. There are no studies on rifaximin for treating dysbiosis. However, there are several studies looking at rifaximin for IBS and inflammatory bowel disease, even when breath tests for SIBO are normal, and patients will typically improve significantly in these studies. In fact, as I mentioned earlier in the SIBO treatment unit, rifaximin is not even approved for treating SIBO, but it is approved for treating IBS-D, and breath test is not required to confirm an IBS-D diagnosis, so this is a legitimate and now FDA-

approved use of rifaximin. Rifaximin is effective against a fairly wide range of bacteria in the small intestine, and, in fact, it seems to have particular activity in the small intestine. It doesn't seem to affect the bacteria in the large intestine as much and doesn't have an adverse effect against some of the beneficial species and may even increase them, like Bifidobacteria and F. prausnitzii, as we discussed before. It does seem to work in conditions like IBS-D, which have been shown to involve dysbiosis in the colon, so there's some reason to believe that it could work for dysbiosis on its own.

After the antimicrobial protocol, as I mentioned, the next step is to restore a healthy gut ecosystem. We accomplish this with three primary interventions: diet, prebiotics, and probiotics. With diet, we, of course, want to avoid things that harm the gut. That's basic, and we want to emphasize things that support the gut. By now, we know what these things are from the other sections that we've already covered, but in particular, in this context, we want patients to eat plenty of fermentable fiber and fermented foods. You need to remind your patients that with each bite of food they should consider how it feeds them and how it feeds their gut bugs because those are not always the same foods. We'll cover fermentable fiber, fermented food, prebiotics, and probiotics in great detail in a later section of this unit. I also have a patient handout called "Rebuilding the Gut Protocol" that explains this in detail. For now, we're going to continue with the treatment protocols. Next up is parasites.