# Live Case Recordings #3 - Case Review Part Two

Chris: Giving you things to really reduce your cortisol would not be a good idea because your cortisol, except for the small amount of free cortisol, is not high. Giving you things to increase your cortisol wouldn't be a great idea either because your free cortisol is a little elevated, and that could have undesirable effects. What we really want to do is focus on improving the metabolism of cortisol via improving your thyroid function and possibly your liver function. The way we will do that is address the things that are causing your thyroid to malfunction in the first place, which is immune related for you, and also addressing things that may be impairing your liver function, which could be also thyroid. It could also be chronic inflammatory response syndrome. It could be nutrient deficiency related to the SIBO that is impairing your absorption of those nutrients. It could be impaired methylation, which we're going to talk about in a second, and that in turn is very likely related to malabsorption of some of the B vitamins, which are important for methylation. That is also supported by the fact that you—do you feel better with the B vitamins? I know you're taking them for energy, you said. Do you notice a difference?

Jonathan: Yeah. When I take them, I do notice a pretty good difference.

Chris: Okay. The other couple things on the DUTCH test that I wanted to mention is your testosterone levels and your dihydrotestosterone, or DHT, levels were a little bit elevated. I want to follow up with serum testing of these hormones. What we measure in the urine is often not the true hormone itself. It's the hormone that has been excreted, and that means it has gone through liver detoxification and ended up in the urine. Very often they are the same, and they are correlated really well, but in cases where there may be an issue with clearance or metabolism, as we know there may be for you, what we measure in the urine might be higher or lower than what is actually present in the serum. I'd like to take a look at your serum testosterone and DHT levels just to see if they actually are high, or we're just seeing an artifact in the urine.

Your progesterone metabolites were a little high. The most common cause of that for men is being in an active stress response.

Your melatonin levels were also a little bit higher than normal. Do you supplement? You didn't put melatonin on your list of supplements, but were you supplementing with that when you took this test?

Jonathan: No, I was not.

Chris: Okay. Slight elevations of melatonin in the urine without supplementation may be related to neural inflammation. That is inflammation of the brain or neuronal cells. That is certainly somewhat consistent with your symptoms, the depression and the cognitive stuff that you go through. In terms of what might be driving that, again, it's possible that it is gut inflammation that is causing

brain inflammation, which we know happens. It is also possible that it is related to chronic inflammatory response syndrome.

Jonathan: Okay.

Chris: Let's talk a little bit about that, CIRS. We did several tests for that. We had the C4A level, which is a marker of innate immune activation inflammation, and that was high. The range is 0 to 2,830, and you're at 5,561. Your VEGF was normal. I'm just going to go through all the markers, and I'll explain what it means.

Jonathan: Okay.

Chris: Anticardiolipin antibodies were normal. Your TGF beta-1 level, which is another marker of innate immune activation, was high. The range is 344 to 2,382, and you're at 4,340. Your antidiuretic hormone, which I mentioned before with uric acid, that was low. It should be above 1, and you're at 0.8.

Jonathan: Okay.

Chris: Your MMP9 was normal. Your osmolality was normal. Your melanocyte-stimulating hormone was a little low. It should be above 32, and you were at 28. In order to meet the case definition for CIRS, as Dr. Shoemaker, who defined this condition, suggests, you have to have at least four markers at abnormal. Of the markers that we've tested so far, you do have four markers, so you technically do meet the case definition, but you're right on the borderline for meeting it. Have you done a visual contrast sensitivity test or filled out the biotoxin illness survey? I didn't see it in your chart.

Jonathan: No, I don't think so.

Female: No.

Chris: I'm going to order that for you now. The visual contrast sensitivity test was developed by a scientist at the EPA, the Environmental Protection Agency, after Hurricane Katrina. They needed a way of quickly determining who had developed illness from exposure to water-damaged buildings after the hurricane, which, of course, was very common. People were living in those buildings. This research scientist, Ken Hudnell, at the EPA combed through the literature and found that a number of studies indicating that when people are exposed to mold or other biotoxins, they experience a decreased ability to detect visual contrast. That means looking at patterns of light and dark and declining visual contrast. People who are exposed to biotoxins have a decreased ability to detect those declining patterns of visual contrast compared to people who aren't exposed to biotoxins. It's not something you would notice on a day-to-day basis typically unless maybe you worked in graphic design or some other occupation that required you to be really focused on that, but most people don't even realize it. This can be tested using an online screening process that shows you

patterns of decreasing visual contrast, and then it gives you a score based on your results. You send that to us, and we can assess the likelihood that you are affected by biotoxins using that tool.

Jonathan: Okay.

Chris: If you have a positive VCS result, we use your ongoing results with retests of that to determine treatment steps in the protocol for CIRS.

Jonathan: Okay.

Chris: The second screening tool is a biotoxin illness survey, which is just a validated symptom questionnaire that looks at your symptoms in 13 different clusters. Together with the visual contrast sensitivity test, it just helps us to determine how likely is it that this is a major contributor to your symptoms.

Jonathan: Okay.

Chris: The other test I would like you to do is a MARCoNS test. It looks for antibiotic-resistant coagulase-negative staph in the nasal passages. This MARCoNS tends to develop in patients with chronic inflammatory response syndrome, especially those who have low MSH. Amy, do you happen to have any MARCoNS kits in your office?

Amy: I have one.

Chris: Great. You can torture Jonathan with that.

Amy: Yes.

Jonathan: [Laughs]

Chris: It's not too bad. Your eyes will water a little bit, but it's all for a good cause. You'll be fine. I'm just joking. It's never comfortable to have something stuck up your nose, but it's really not too bad.

Jonathan: Okay.

Chris: That will also be helpful in determining the treatment. If you do have CIRS, and it turns out that you're positive for MARCoNS and biofilm in your nose, then that will be an important step in treating the CIRS.

Jonathan: Okay.

Chris: In terms of your symptoms, chronic inflammatory response syndrome is, as the name suggests, a systemic chronic inflammatory condition. Inflammation is now thought to be one of the

major root causes of depression. In fact, there is a name for that now. It's called the inflammatory cytokine model of depression. The idea is that inflammatory cytokines, which are produced as a result of inflammation anywhere or for any reason—often it's the gut—but it could also be something like exposure to a biotoxin or exposure to heavy metals or something like that, those inflammatory cytokines travel through the bloodstream. They cross the blood-brain barrier, and they suppress the activity in the frontal cortex. When you look at the symptoms that suppressed activity of the frontal cortex causes, and you put those side by side with the symptoms of depression, they are almost identical.

Jonathan: Okay.

Chris: The earlier theory of depression was that it was caused by a serotonin imbalance or neurotransmitter imbalance, and the treatment, of course, was to prescribe drugs that increased the availability of serotonin in the brain. Even if there is a neurotransmitter imbalance that results from depression, the newest research suggests that is not the underlying cause of the depression. It's inflammation, so to really address the cause, you need to go find the source of the inflammation and then address that instead of just using drugs to alter brain chemistry.

Jonathan: Right.

Chris: In your case, it could be one of two things that we're looking at right now. One would be the SIBO, which causes inflammation in the gut, and we saw on the Doctor's Data stool panel that you do have a marker for inflammation in the gut, two actually, the lysozyme and the sIgA. The CIRS could also be another cause of inflammation that is contributing to depression.

The last test I want to look at is the methylation panel. That was the methylation pathways panel you did, a blood test. I think there are 12 markers on that panel, and 10 of them were out of range for you. The two that were in range were at the low end of the range, so there is definitely something going on with methylation for you. Again, the significance of that related to everything else that we've been talking about is that methylation is crucial for neurotransmitter metabolism and synthesis. One of the most predictable symptoms of impaired methylation is depression, anxiety, or any other kind of mood or cognitive and behavior disorder. Methylation is also an important part of phase two liver detoxification, so your ability to eliminate toxins is really strongly influenced by methylation. Cellular energy production, which is the source of all energy in the body, is influenced by methylation. As I said, the detox capacity in general is influenced by it, so skin problems can often be a result of poor methylation. Your symptoms of psoriasis, the low energy, and the depression and mood issues are pretty classic signs of impaired methylation.

Now, the question is, why is your methylation impaired? In functional medicine, as you've already gathered, we're always trying to get to the root of the problem. Is your methylation impaired as a result of CIRS? Is it impaired as a result of SIBO, which is decreasing your absorption of folate, B12, and other nutrients that are important for methylation, and is that why taking those B vitamins makes you feel better? Or is impaired methylation contributing in some way to CIRS and your

ability to get rid of the toxins? The answer we don't know. We can't know yet what the answer is. My guess is it is probably a little of both, but at this point after doing this work for a while, I'm more likely to see impaired methylation as a result of other triggers or influences than I am to see it as the underlying cause itself, although there are genetic factors that can predispose you to poor methylation. We would probably want to take a closer look at that. Have you done a 23andMe gene panel?

Jonathan: No. My parents both have, but I didn't.

Chris: Okay. I'd like you to do that. Dr. Nett will give you instructions on what to do with the results. There are a couple free services that you can use to give us the data that we need in terms of looking at your methylation genetics, and then Dr. Nett can review that with you when you see her next.

Jonathan: Okay.

Chris: I think we've covered most of the follow-up testing that I would like you to do in the context of going over the test results. The only one that I didn't mention I think was a survey that we have. It's another validated survey that is designed to assess the likelihood that tick-borne illness is contributing to your symptoms. I know that you've had a tick bite. You live in an endemic area. Your symptoms and the relatively rapid onset of your symptoms were preceded by a period of good health for most of your life is consistent with tick-borne illness. It is also consistent with exposure to a biotoxin, and sometimes those two things overlap. For example, Dr. Shoemaker's belief is that Lyme definitely exists, but oftentimes people who develop chronic symptoms of Lyme are actually reacting not to the Lyme, the Barella or the organism itself, but to the toxins that are produced by it. Those are some of the toxins that he discovered can cause chronic inflammatory response syndrome. It's not just mold but also I think, as we mentioned in the initial consult, Pfiesteria, which you get exposed to from eating certain kinds of fish, and Ciguatera, which you can get exposed to by swimming in freshwater that has algae in it, blue-green algae particularly. I'd like you to do that survey. That will just help us determine how high on the priority list we put a deeper investigation of tick-borne illness. There are a lot of blood tests that we can do for that, but it is a lot of testing, and it's fairly expensive, so we want to make sure that if we move in that direction that there is a good reason to do that.

Jonathan: Right. Yes.

Chris: In terms of the treatment, I think the most important thing to do starting out is an antimicrobial treatment for SIBO. You're strongly positive for SIBO. It matches very well with your symptoms. I'm relatively certain that it is contributing to your symptoms, and I think that is where it makes the most sense to focus our efforts.

Jonathan: Yes.

Chris: Now, one thing I'll mention is that my belief is that sometimes SIBO is more of a symptom than it is a cause. Let's put it a different way because it's not always linear. SIBO is here. Then you have your fatigue, your psoriasis, and depression here. These are the symptoms, and SIBO is contributing to that, but there could be something underneath SIBO that is contributing to the SIBO. That is what is often missed. In the functional medicine world, I see patients getting treated for SIBO over, over, and over again. It keeps coming back. Often the idea is this patient just has an impaired migrating motor complex, so they're just going to require ongoing treatment for SIBO. To me, that's not a satisfactory stopping place, and that doesn't make sense to me. Unless there is a structural problem such as cystic fibrosis or Parkinson's that interferes with motility, there has to be some reason that the migrating motor complex is impaired. The deeper level could be, like we've found with patients with recurring SIBO, heavy metal toxicity. It could be chronic inflammatory response syndrome. It could be tick-borne illness, some problem that is affecting the neurological function of the gut that is leading to that recurring SIBO. I do want to treat the SIBO. I think you'll get relief from it. I'm just mentioning there is a possibility that if CIRS is present, addressing the SIBO isn't the deepest level that we're going to get to, and we may need to address the CIRS to fully deal with the SIBO on an ongoing basis.

Jonathan: Okay. Yes, that makes really good sense to me. My dad had wanted me to ask you something. I wasn't sure [43:39 crosstalk].

Male: Need to respond. [crosstalk]

Chris: For the methylation, there are two directions that we can go in. We can make that decision together based on what your preference is. I'll give you the pros and cons of each direction. One is that we give you a handout that lists all of the dietary sources of the nutrients that are required for proper methylation. You just focus on, initially at least, incorporating more of those foods that have higher levels of those methylation-related nutrients into your diet, and we just focus on the antimicrobial protocol for SIBO first, and just use a dietary approach for methylation. The advantage to that is that the antimicrobial protocol itself involves several supplements. It's kind of a project to keep it all straight and to take that number of supplements on a daily basis. I think it's about six or seven supplements. That is often what I prefer to do.

After the antimicrobial protocol is finished, then if you're still experiencing symptoms, especially if we retest and your methylation markers have not changed significantly, then we could consider doing a supplement protocol for methylation. The disadvantage to that approach is that given that 10 out of 12 of your markers were out of range, and given that your absorption is probably somewhat impaired still because we haven't addressed the SIBO, and given that you respond well to some of the B vitamins that you're already taking, my guess is that supplements may be necessary, at least for a period of time, to fully resolve your methylation issue.

We could start with the supplement protocol right away along with the methylation protocol, but that adds some complexity. It adds about six or seven more supplements in addition to the ones you're already doing for the methylation protocol. You can make an argument in both directions.

Some patients know themselves, and they know that they get overwhelmed with complexity. They know also that they have a history of reacting to supplements, so they prefer to keep it more simple and to do things in a stepwise fashion and go one at a time. Other patients are more eager to move forward more quickly and are willing to deal with that potential added complexity. They just want to get started and move forward as quickly as possible. I could go either way. If you were to ask me what my preference would be, it would probably be to start with the nutrients, especially because as we treat the SIBO, it is probable that you will start absorbing those nutrients better. That may turn out to be enough, but if you intuitively feel like the methylation protocol with the supplements would be good for you, and you want to try that, I'm open to that too.

Jonathan: I don't mind it being more complex. I'm not saying I'd have a very easy time keeping up with it, but I think I could make sure that I would. If you think there is no downside in the way that I would feel, I can't remember any times when I reacted poorly to a supplement.

Chris: Okay. Do you have a feeling about it?

Amy: I think if he's open to more supplements, I think the motivation is there. Looking at how strict the diet is, I think the motivation is there to move forward a little bit more aggressively.

Chris: Okay. We'll do the protocol then. Can you add that to the chart, Amy?

Amy: Yes.

Chris: Okay. We're also going to give you a handout that has some recommendations for stress management. These are things that just help with the regulation of your HPA axis. I know you're already probably doing some of them, but there are a number of recommendations in terms of regulating your exposure to artificial light, to bright light during the day, and things that can be helpful. Again, you're probably familiar with them somewhat, but it's helpful to have them all in one place so you make sure you're checking all the right boxes there.

Jonathan: That would be great.

Chris: Then the next steps would be you'll do the protocol, the antimicrobial protocol for SIBO for 60 days. I think for the methylation protocol it makes sense to go for a full three months before we retest just because of what we've seen clinically. It can often take that long to respond. Then you'll retest the SIBO breath test after that 60 days on the antimicrobial supplements. Meanwhile, you'll be doing all of the follow-up testing that we've talked about for the tick-borne illness survey, the vitamin D, and the alkaline phosphatase isoenzymes, all the things that we want to follow up on. At the next appointment you have with Dr. Nett, she'll go over all of your follow-up test results and the retest results and decide whether it makes more sense to go down the CIRS path or the tick-borne illness path based on the results and how you responded to the treatment.

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