KRESSER INSTITUTE
FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

HPA-D Treatment - Part 5

Next, let's talk a little about sleep. Again, we covered this elsewhere, so I'm not going to go into tremendous detail here, but I want to review and then mention a few things I haven't talked about much yet.

You need to explain the importance of sleep to your patient. This should be a no-brainer, but in our culture, many people are either not fully aware of the effects of sleep deprivation, or they need to be reminded frequently in order to take action. Sleep affects the function of almost every system of the body, as you know by now, and improving the quality, duration, and timing of sleep is one of the single most powerful interventions you can make to improve your health. We need to constantly encourage our patients to make sleep a priority if they're not already.

The first thing to talk about is sleep duration. Research suggests that most adults need between seven and nine hours of sleep each night, so start by setting aside at least eight hours per night for sleep, and consider increasing this amount if you still don't feel like you're getting enough. There is a more specific method that has been proposed for figuring out how much sleep an individual needs. It's based on Dr. Alex Borbely's two-process model of sleep regulation. You can check out **this guest post by sleep expert Dan Pardi on my blog** for more details. The basic idea is that you allow more time in bed for sleep than you need, and then you see when you wake up without an alarm clock. If you do that, you'll figure out how much sleep you actually need.

The second thing to talk about is sleep hygiene. The goal with sleep hygiene is to create an environment and circumstances that are conducive to sleep. One would be to use your bed, and preferably the entire bedroom, for only sleep and sex. Two would be to avoid working and using electronic media in the bedroom, especially near bedtime. Three is along the same lines as two: do not bring your phone into the bedroom. Don't set it on your bedstand. It's always amazing to me how many people do that, particularly younger people, and will just wake up and respond to text messages during the night. Be careful with books. In some cases, books can help people to fall asleep, but in other cases, if you're reading a good book in bed, something with a gripping plot line can hook you and make you stay up later than you would have otherwise.

Creating a pleasant and relaxing environment in the bedroom is really important. Make your bed as comfortable as possible, and this is one area where you really should not skimp on expense. It's worth the investment to get a bed that is a really high-quality and possibly organic mattress, so it doesn't off-gas chemicals that can disrupt sleep, that has a firmness that is just right for you. Controlling the temperature in the bedroom is important. Most people sleep better in a slightly cool environment, so taking whatever steps are necessary to ensure that throughout the year, and then creating an ambience that is conducive to sleep and rest, again quiet, dark, and just a calm environment.

Try to avoid emotionally upsetting conversations or activities right before bed. This is obviously not always possible, but just before bed is not the best time to get into a heated discussion with your partner or family member. It's not really the best time to review some stressful stuff that might have happened at work, so you want to create an emotional buffer between the rest of your day and then the 30 to 45 minutes prior to bedtime. There are different ways of doing that. Some people like to take a bath or have some other kind of ritual that helps to create that boundary or barrier.

Reduce noise level. If there is a lot of noise outside your bedroom, you can use earplugs and/or a white noise machine. Even now, there are just really a lot of apps for iOS and Android. You can get a speaker such as a Bluetooth speaker, and then you can turn on white noise on repeat and just have it go through the night. Make sure to keep your phone, iPad, or whatever you're using to broadcast to that speaker outside of your bedroom, though, or at least put it in airplane mode and cover it so you're not getting any kind of notifications throughout the night.

Sleep nutrition. Some people sleep better after eating only a light dinner. That's especially true for those with digestive issues, whereas others such as people with a tendency toward hypoglycemia do better with a snack before bed and possibly even during the night, if they wake up. In general, it's best to be neither overly full nor overly hungry when you go to bed.

I haven't seen any research on this specifically, but in my experience working with patients, I've found that both low-fat and low-carbohydrate diets can contribute to insomnia. Long-chain saturated and monounsaturated fat such as butter, lard, tallow, olive oil, and palm oil contribute to satiety and help prevent hunger through the night. Carbohydrates increase the ability of the amino acid tryptophan to enter the pineal gland. Tryptophan is the precursor to serotonin and melatonin,

both of which are crucial for sleep. If you're on a low-carb diet, and you're experiencing insomnia, try adding a little carbohydrate back in, especially at night.

Certain amino acids that are found in muscle meats and eggs compete with tryptophan for transport across the blood-brain barrier and entry into the pineal gland. However, gelatinous animal products such as skin, cartilage, and bones don't have this effect because they aren't rich in the amino acids that compete with tryptophan. So, balancing your intake of muscle meats and eggs with fattier cuts of meat and bone broth can promote the uptake of tryptophan and the production of serotonin and melatonin in your brain, all of which will help with sleep.

Beware of how stimulants affect sleep. Remember one study found that 90 percent of Americans drink caffeine in the afternoon, and 69 percent drink it after 6 p.m. Another study found that caffeine consumed three hours before bed, not surprisingly, delayed the circadian clock by about 40 minutes, which is in effect equal to three hours of additional daylight exposure. You have to talk to your patients about this. You might assume that they know that drinking caffeine in the afternoon or evening will affect their sleep because that would seem to be common sense, but as these statistics suggest, most Americans are doing it, and a lot of Americans have sleep difficulty, so this is something you have to raise with your patients.

Another thing that is important to explain to them is that even if they don't feel overstimulated in the immediate moment after drinking caffeine, it could still be adversely affecting their sleep. Personally, that happens to me. If I drink coffee, a moderate or small amount of coffee, I won't feel jittery, agitated, or anxious right afterward, but I will notice an effect on my sleep, particularly after the second, maybe third, or fourth day I've consumed the caffeine, so that is another thing to raise with your patients. It can have a cumulative effect. I could maybe drink caffeine for a few days without having that effect, but if I consume it regularly, it starts to affect my sleep. There are a lot of subtleties to be aware of and to talk about with your patients.

Physical activity, of course, is very important for stress management. Aerobic exercise training has antidepressant and antianxiety effects and protects against the harmful consequences of stress. Cross-sectional studies link exercise habits to protection from the harmful effects of stress on physical and mental health, and exercise training seems to increase resilience.

On the other hand, too much exercise can also be a stressor. Overtraining can act as an additional stressor if allostatic load is already high and can lead to a semipermanent catabolic state where the body is just breaking down. Signs of this would include insomnia, anxiety, muscle soreness, waking up fatigued, poor exercise tolerance and recovery, decline in performance, and brain fog.

So how much exercise is appropriate? As usual, it depends on the individual, and you have to consider the overall circumstances and allostatic load. For example, if they have severe HPA axis dysregulation on their labs, she is a single mom, full-time job, two young kids, blood sugar issues, sleep deprived, using the computer late at night with an autoimmune inflammatory condition. That person is going to do better with low-intensity exercise, gentle, relaxing, maybe performed outdoors with other people. However, if the patient has only minor HPA axis dysfunction, he is

managing stress well, and he is getting plenty of sleep, he will be able to tolerate more exercise. As a general rule, patients should feel better and more energized after exercise, directly after and later in that day if they did it in the morning, or the day after if they did it at night. If they feel drained, they sleep worse that night, and they have less energy the next day or excessive muscle fatigue, that is a sign that they are overdoing it.

One tool for moderating the amount of exercise that can be useful is a heart rate monitor, a heart rate variability monitor. HRV, heart rate variability, is being increasingly used by professional athletes and the everyday gym-goer to better manage recovery by providing an estimate of when we're overly stressed versus well recovered. A decrease in the variability of the heart rate is a sign of stress. So, you wake up in the morning. You measure your HRV. If it's low, then you would do less that day. If you wake up and you have more variability in your heart rate, you could do more. It can be really helpful, especially for those who are less in tune with their own rhythms. There are mobile devices and apps that have made this more accessible. Both iOS and Android have software and hardware components that can be used. Two popular brands are BioForce HRV and ithlete.

Three other factors that are important are spending time outdoors, pleasure and play, and social support. I've covered these in detail in my book, so I'm not going to go over them extensively here, but it's important to talk to your patient about them and get a sense of where the biggest improvement could be made.

Okay, that's it for now. We'll resume discussing other aspects of HPA axis dysfunction treatment in the next presentation. See you then.