

HPA-D 3-5 – Part 13

What about high cortisol-to-cortisone ratio? This will almost always appear in the context of another pattern such as high free or total cortisol, but remember the factors that favor more cortisol include hypothyroidism, inflammation, visceral obesity, high insulin, excess sodium, and licorice, which increases the circulating the half-life of cortisol. You want to check on these in addition to addressing the rest of the pattern.

High cortisol: cortisone ratio	
More cortisol	More cortisone
Genetic polymorphisms	Genetic polymorphisms
Hypothyroidism	Hyperthyroidism
Inflammation	Human growth hormone
Visceral obesity	Estradiol
Insulin resistance	Testosterone
Excess sodium	Quality sleep
Licorice	Magnolia, Scutellaria, Ziziphus, Citrus peel
Obesity and insulin resistance	Ketoconazole
Hyperthyroidism	

If cortisol-to-cortisone ratio is elevated, it pushes the entire picture further toward high cortisol. For example, if cortisol is only high-normal, but the cortisol-to-cortisone ratio is high, I would treat that patient as if he is a high-cortisol pattern. Obviously, it would be important to avoid licorice in these cases.

Low cortisol: cortisone ratio

More cortisol	More cortisone
Genetic polymorphisms	Genetic polymorphisms
Hypothyroidism	Hyperthyroidism
Inflammation	Human growth hormone
Visceral obesity	Estradiol
Insulin resistance	Testosterone
Excess sodium	Quality sleep
Licorice	Magnolia, Scutellaria, Ziziphus, Citrus peel
Obesity and insulin resistance	Ketoconazole
Hyperthyroidism	

Here is the opposite pattern with more cortisone. Factors that favor that include hyperthyroidism; human growth hormone use; estradiol; good sleep, which is another reason it can be important because cortisone is less active than cortisol; drugs such as ketoconazole; adaptogenic herbs such as magnolia, scutellaria, and ziziphus; and testosterone. As with the last pattern, this often occurs in the context of another pattern, and I would treat for that pattern, but a low cortisol-to-cortisone ratio biases toward low cortisol. It is the opposite of what we just discussed on the last slide, so if a patient has low-normal cortisol but a low cortisol-to-cortisone ratio, I would go ahead and treat that as a low-cortisol pattern. That's really the perfect situation for licorice because it decreases the conversion of cortisol to cortisone, and it can help increase the half-life of cortisol.

Low melatonin

Intervention	Dosage/Comments
HPA Balance	Contains Relora, Sensoril, L-theanine; take 1 cap BID or TID
Kavinace, Acetyl-CH, 5-HTP, melatonin and/or Doc Parsley's Sleep Cocktail	As needed if circadian rhythm/sleep/mood disrupted, melatonin is low (often is in high cortisol states)

Low melatonin also often appears in the context of another pattern, in particular high-cortisol patterns, since cortisol opposes melatonin. In that scenario, you would treat using the protocols I have already mentioned, and these include nutrients for circadian disruption such as Acetyl-CH, PS, and Kavinace. It also includes 5-HTP, which is a melatonin precursor, and melatonin itself. Typically, I will use some combination of all of the above, so HPA Balance to help reduce cortisol if that is present, and then I'll use maybe Kavinace, Acetyl-CH, melatonin, and/or Doc Parsley's Sleep Cocktail. I like that as a starting place because it has a low dose, about 300 mcg, of melatonin, which is more sedating for many people, as I mentioned, than higher doses. It also has L-tryptophan, 5-HTP, a little bit of vitamin D, some magnesium, and PharmaGABA.

High melatonin

Intervention	Dosage/Comments
<p>Neuroflam NT (Apex Energetics)</p>	<p>Contains curcuminoids, rutin, baicalin (skullcap), apigenin (chamomile), luteolin (chrysanthemum); dose is 1 cap TID</p>
<p>Phyto-Brain E (Apex Energetics)</p>	<p>26:1 ratio of DHA to EPA. Each teaspoon includes 60 mg of phosphatidylcholine and more than 100% of the recommended daily value for vitamin E. Dose is 1 tsp/d</p>

High melatonin, so remember if melatonin is high in the urine, it is almost always a result of supplementation, but if they are not supplementing, it can be a sign of neuroinflammation. One product I like for this from Apex Energetics is called NeuroFlam. It is a combination of nutrients that specifically reduce inflammation in the CNS and the brain such as curcuminoids; rutin; baicalin, which is from *Scutellaria baicalensis*, which we talked about earlier, Chinese skullcap; apigenin from chamomile; luteolin from chrysanthemum. Then Phyto Brain-E from Apex Energetics, which is a 26:1 ratio of DHA to EPA, so it is a very, very high dose of DHA. It also includes 60 mg of phosphatidylcholine, so DHA is really important for brain health and reducing neuroinflammation.

Elevated C.A.R.

Intervention	Dosage/Comments
HPA Balance (Vital Plan)	Contains Relora, Sensoril, L-theanine; take 1 cap BID or TID
Kavinace (Neuroscience)	Contains 4-amino-3-phenylbutyric acid and taurine; take 2 capsules before bed if sleep primary concern; or 1 cap TID for anxiety/stress
Phosphatidylserine	PS dose: 100-200 mg TID
Acetyl-CH (Apex Energetics), 5-HTP, melatonin	As needed if circadian rhythm/sleep/mood disrupted, melatonin is low (often is in high cortisol states)
Metabolic Synergy & GlucoSupreme (Designs for Health)	Only if blood sugar high; Metabolic Synergy dose 2 caps TID; GlucoSupreme 2 caps BID
Boswellia, curcumin & fish oil	Only if significant inflammation present
CBD	Optional. Use if anxiety severe, or other conditions present

We briefly covered how to do your own cortisol awakening response saliva test in the last section, so I wanted to talk a little bit about how to address abnormal CAR results if you get them. If the CAR is elevated, i.e., you see over 600 percent increase in the first 30 minutes, you would treat that as a high-cortisol pattern, so this is actually the same protocol for high cortisol that we talked about before. You can add supplements if there is evidence of disrupted rhythm or high cortisol at night. There you would use Kavinace to bring it down or phosphatidylserine, maybe Acetyl-CH to reset the rhythm.

Low C.A.R.

Intervention	Dosage/Comments
Vital Adapt (Natura Health Products)	Contains Eleuthero, Rhodiola, Schisandra, Ashwagandha, Cordyceps, Reishi, Ginseng, Licorice
Adrenal glandulars (Dr. Ron's)	Optional; some patients with high cortisol do well with them. 3 capsules in the morning
Licorice	Patients with very low cortisol may benefit from additional licorice; Vital Adapt contains 10 mg of glycyrrhizin per 2mL dose; patients with low cortisol can safely take up to 100 mg/d
Acetyl-CH, 5-HTP, melatonin, L-theanine	As needed if circadian rhythm/sleep/mood disrupted, melatonin is low
Boswellia, curcumin & fish oil	Only if significant inflammation present
CBD	Optional. Use if anxiety severe, or other conditions present

If the CAR is lower than 350 percent, it is low or blunted, and in that case, you would consider the low-cortisol protocol, so this is identical to what we discussed before.

Normal **HPA lab results/** **subjective HPA dysfunction**

Intervention	Dosage/Comments
Adaptogens	Either HPA Balance, Vital Adapt, or Gaia Adrenal Support depending on presentation
Adrenal glandulars (Dr. Ron's)	Optional; some patients with high cortisol do well with them. 3 capsules in the morning.
Acetyl-CH, 5-HTP, melatonin, L-theanine	As needed if circadian rhythm/sleep/mood disrupted
Kavinace, Relora and/or PS	If sleep is significantly disturbed, may want to consider taking one or more of these before bed
Metabolic Synergy & GlucoSupreme	Only if blood sugar high; Metabolic Synergy dose 2 caps TID; GlucoSupreme 2 caps BID
Boswellia, curcumin & fish oil	Only if significant inflammation present
CBD	Optional. Use if anxiety severe, or other conditions present

In the testing section, I mentioned that not all lab tests for HPA axis function are perfect, and HPA-D is ultimately a clinical diagnosis. You will see patients with relatively normal labs but who have every sign and symptom of HPA-D in the book. I would still treat those patients for HPA-D. It is harder because you don't have the benefit of labs to track progress, and it is harder to be specific about which supplements to use.

In these cases, I typically avoid using strong stimulants or supplements such as licorice that clearly raise cortisol. I'd also minimize using supplements that clearly lower cortisol, so this is where adaptogens such as a moderate or mild adaptogenic formula and adrenal glandulars can work really well, so HPA Balance, Vital Adapt, or better yet Gaia Adrenal Support depending on their presentation, whether they are more stimulated or more tired. HPA Balance is better when you suspect a higher cortisol state. Vital Adapt is probably better for lower cortisol and fatigue. Gaia is more balancing perhaps and gentle. Then adrenal glandulars, those are optional, of course. Some patients do well with them, so you might want to consider Acetyl-CH if their circadian rhythm, sleep, or mood is disrupted or Kavinace, Relora, and PS if sleep is significantly disturbed. You could consider giving one before bed, then the supplements we've talked about for blood sugar and inflammation, and then possibly CBD.

Okay, that was a lot. I hope you are still with me. As always, let us know if you have any questions. I'll see you next time.