



Newsletter

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A perfect balance: treating elevated cortisol and catecholamines

Most of our educational materials (webinars, newsletters, handouts, etc.) focus on ways to boost cortisol production and support healthy adrenal function due to hypoadrenia (suboptimal or low cortisol levels), despite the fact that stressed patients expect to see their cortisol levels elevated. But what about those times when cortisol levels *are* elevated? Though this isn't nearly as common as the lay public expects it to be, elevated cortisol levels do occur and can often be a hiccup for the practitioner who has recently established a comfort level with treating hypoadrenia.

Depending on how high the salivary cortisol level is, the first step is to rule out any exogenous exposure of cortisol. This can include oral medications such as Cortef, topical hydrocortisone (that is available over the counter), and sometimes corticosteroid asthma inhalers. Keep in mind that topical cortisol creams may be affecting a patient's test result even if he/she was applying the cream to someone they were caring for (child, parent, spouse, pet etc.). If contamination with one or more of these substances is suspected, a repeat salivary test should be performed with careful avoidance of interfering ingredients. If exogenous exposure to these items is excluded, then it can be assumed that the HPA axis is hyperactive -- resulting in elevated cortisol levels.

Many of the treatments recommended for elevated cortisol are common to treatment of suppressed cortisol levels. Adaptogens are a class of herbs that help the body adapt to stress and include rhodiola, licorice, ashwagandha, holy basil and others. These herbs are effective at modulating adrenal function with high and low cortisol production, and can also be used to effectively modulate the catecholamine neurotransmitters epinephrine and norepinephrine that are produced in the adrenal medulla. Additionally, nutritive support for a healthy adrenal response, including vitamins B5, B6, C and E, is important regardless of cortisol or catecholamine levels. There are some significant **differences** in treatment protocols however, as phosphorylated or phosphatidyl serine (PS) use is recommended with elevated cortisol levels. This modified amino acid has been shown to blunt stress related spikes in cortisol and ACTH. For this reason, it is recommended to be taken at the time of day when salivary cortisol levels are elevated. Additional doses in individuals with demonstrated elevations may be used after an intense workout, when cortisol levels may be increased.

Evaluation of each patient's individual neuroendocrine system is essential to determine the optimal treatment. Adaptogenic herbs are an effective option with both elevated and suppressed cortisol and catecholamine levels, however in cases where salivary cortisol is elevated, timed phosphorylated serine supplementation is an effective addition to the treatment plan. PS supplementation should be

administered for 1-3 months before re-evaluation of levels is done.

Resources

1. Hellhammer J. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. *Stress*. 2004 Jun;7(2):119-26.
2. Starks M, Starks S, Kinglsey M, Purpura M, Jager R. The effects of phosphatidylserine on endocrine response to moderate intensity exercise. *J Int Soc Sports Nutr*. 2008; 5;11.
3. Monteleone P. Effects of phosphatidylserine on the neuroendocrine response to physical stress in humans. *Neuroendocrinology*. 1990 Sep;52(3):243-8.
4. Monteleone P, Maj B, Beinat L, Natale M, Kemali D. Blunting by chronic postphatidylserine administration of the stress-induced activation of the hypothalamo-pituitary-adrenal axis in healthy men. *Eur J Clin Pharmacol*. 1992;42(4):385-8.
5. Kingsley MI, Wadsworth D, Kilduff LP, McEneny J, Benton D. Effects of phosphatidylserine on oxidative stress following intermittent running. *Med Sci Sports Exerc*. 2005 Aug;37(8):1300-6.
6. Chandrasekhar K, Kapoor J, Anishetty S. A prospective, randomized double-blind, placebo-controlled study of safety and efficacy of a high-concentration full-spectrum extract of ashwagandha root in reducing stress and anxiety in adults. *Indian J Physhol Med*. 2012 Jul;34(3):255-62.

Upcoming events

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February 1-2, 2014
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