

Use of Lab Testing in Alternative Medicine

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Integrative Medicine Perspective by Dr. Julie

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Are Salivary Cortisol Testing Kits Worth Doing?

One of the most frequently utilized testing kits that I have my patients do is salivary cortisol testing. Surprisingly, patients with symptoms suspicious for adrenal dysfunction or fatigue can frequently get some level of health insurance coverage for this.

Many of the patients in my clinic have chronic diseases or chronic pain, and therefore adrenal fatigue is a common finding. The salivary cortisol testing kits are usually given at the initial visit because, if adrenal fatigue is an issue, it usually plays a significant role in symptomatic presentation and is thus important in the overall therapeutic regimen.

So, if you suspect adrenal dysfunction in your patient, how do you decide among using salivary cortisol testing kits, blood work, and urine testing?

Many physicians test for adrenal functioning by using a 24-hour urine sample to look at cortisol production if the initial spot cortisol level leaves questions unanswered.

Instead of having patients tote around 24 hours' worth of urine sample, I find that baseline salivary cortisol levels in conjunction with a 9 a.m. DHEA-s and cortisol serum level can provide an in-depth initial perspective on a patient's adrenal status. This way, if the saliva test is more expensive for a patient, we have a baseline serum level for comparison and would only need to repeat saliva testing if we think that the patient's adrenal dysfunction symptoms have changed significantly or if there are unanswered questions with a spot cortisol level or DHEA-s test.

Physicians sometimes will look at other hormonal levels to

get a broader-spectrum viewpoint as to overall status of the hypothalamic-pituitary-adrenal (HPA) axis. If this is the case, most physicians will also look at least at the following hormones – testosterone, estrogen, progesterone, and thyroid panels – to see whether there are subclinical abnormalities in the HPA axis.

I agree with the method of also looking at the other hormonal levels, because I find that minor abnormalities are best identified when looking broadly at the HPA axis. However, in regard to testing for these other hormonal levels, as we will discuss in a moment, I stick to the serum levels for now because more work is needed to establish more accurate testing parameters for these various other saliva hormonal tests.

But regarding cortisol levels, I prefer salivary cortisol testing instead of 24-hour urine testing for the following



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reasons: salivary cortisol has high sensitivity and specificity as compared with gold standard, there is ease of collection of salivary samples compared with urine samples, steroid hormone stability is high in saliva, and food intake and hygiene don't usually affect values.^{1,2}

In theory, salivary hormone samples usually represent "free" non-protein-bound biologically active component of the hormone.^{3,4} However, because proficiency testing for some kits is not yet standardized, and there is some concern that cotton products interfere with some saliva hormone measurements, I usually do not test for other hormones via saliva testing except for cortisol.^{4,5}

Based on a few studies, there is an indication that some of the hormones may be affected by the use of cotton collection.^{5,6} Those that may be falsely high because of this issue may include DHEA, progesterone, testosterone, and estradiol. There is also a concern that the effect of prescription medications and over-the-counter drugs has not been established in salivary hormones.^{3,4}

However, despite the questions about cotton collection and its effect on accuracy, there have been studies that compared salivary hormone levels with plasma levels, and the following have been found to be favorably comparable for the most part: cortisol, DHEA, 17-hydroxyprogesterone, estriol, estradiol, aldosterone, progesterone, androstenedione, and testosterone in males.^{3,4,7-9}

Out of these, the one that has more specific sensitivity and specificity data in the literature is cortisol. Even within studies, there are still questions of inconsistent findings such that some of those suggested to have issues with cotton collection methods in some studies were still seen

to have favorable comparability to the plasma tests in other studies. So, as you can see, further studies are necessary to draw more definitive conclusions on these tests.

There are, however, other hormone levels that have more consistently not been found to have as favorably comparable levels with the plasma levels: thyroxine, thyrotropin, prolactin, gonadotropins, cortisone, prednisone, prednisolone, and testosterone in females.^{3,4,7-9} Along with this problem, another problem is that normal or reference values for most salivary hormones have not been firmly established from study to study. Therefore, although salivary hormone testing seems promising, more work is needed to establish consistency of levels and appropriate reference levels for lab findings.

One last thing to keep in mind when deciding on lab testing: you need to evaluate whether a lab is worth doing based on whether the findings have high enough disease predictive value. Out of the salivary hormone testing options, salivary cortisol has been shown to have high predictive value for stress and Cushing's syndrome, among others.¹⁰ Otherwise, there is a lack of studies demonstrating predictive values of salivary steroid hormones with regard to certain pathological disease states.

As you can see, the decision to move forward with a lab test, when confirmatory studies are still lacking, can be a difficult one. However, as public interest in complementary testing methods continues to grow, so will the number of studies looking into this fascinating field of health care. In this regard, there hopefully will be more data in the very near future available to health-care practitioners everywhere, so that we may utilize the data from more convenient lab options to help our patients move toward their goals of health and well-being.

Notes

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