



**Dr. Techy says,**  
**"Pain practitioners are really getting scientific!"**

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A presentation entitled "Hormones and Pain" was presented on September 6, 2013 at "Pain Week" in Las Vegas. A press story by "Pain Week" on the presentation is reported here, verbatim.



## **Hormone Levels Can Validate Presence of Pain and Affect Treatment**

**LAS VEGAS**—Serum levels of pituitary, adrenal, and gonadal hormones are the most objective biomarkers of severe uncontrolled pain, said Forest Tennant, MD, DrPH, of the Veract Intractable Pain Clinic, West Covina, California, in a presentation that focused on pain and hormones.

Hormones critical for pain control are cortisol, pregnenolone, dehydroepiandrosterone (DHEA), progesterone, testosterone, estrogen, and thyroid. The blood panel recommended as a pro le for pain management is adrenocorticotropin (ACTH), cortisol, pregnenolone, testosterone, DHEA, and progesterone. Dr. Tennant emphasized it is important to determine abnormal serum hormone levels for several reasons: to validate the presence of severe pain and need for enhanced treatment, determine if hormone replacement is needed, provide an objective measure of treatment success, and identify the complication potential of hormones, particularly cortisol and testosterone.

Patients who should be screened for hormone abnormalities are those who require daily opioids, complain their current regimen is not effective, or have central pain. Hormones suppressed by opioids include cortisol, testosterone, pregnenolone, estrogen, progesterone, and oxytocin; in addition, other hormones may also be affected. Long-acting opioids are more suppressive than short-acting, he said, due to their longer duration; some tolerance and homeostasis may develop over time.

Common manifestations of hypocortisolemia include low blood pressure, weakness, poor analgesic response, weight loss, cold, muscle wasting, brown pigmentation (in scars, under eyes, axillae, and creases), golden hue to skin or vitiligo, slow mentation, sitting still and staring straight ahead, and weak voice. Testosterone deficiency manifests with symptoms of fatigue, decreased libido and performance, depression, slow mentation, poor analgesic response, muscle weakness, and gynecomastia.

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To spare or reduce opioids, serum hormone levels should first be normalized. If a patient is already taking an opioid, hormone levels should be determined prior to initiation of a long-acting opioid. In addition, an opioid should not be determined to be ineffective or causing hyperalgesia or allodynia

until hormone serum levels are determined and normalized. Replacement hormone is needed when pain and/or opioids and other medications have reduced serum hormone levels. In patients with pain, the pituitary, adrenal, and gonadal glands are usually not irreparably damaged; therefore, sub-replacement is used in pain management.

Dr. Tennant said bio-identical, and not potent synthetics, should be used; for example, hydrocortisone in lieu of methylprednisolone, dexamethasone, or prednisone. The most common hormone replacements and their usual daily dosages are hydrocortisone (5 mg to 15 mg), pregnenolone (100 to 300 mg), testosterone (male, 10 mg to 100 mg; female, 2.5 mg to 25 mg), and DHEA (100 mg to 300 mg). Dosages should be increased daily over 6 to 8 weeks, with serum levels repeated every 1 to 4 weeks until hormone is in normal range. The patient can attempt tapering after pain is well-controlled.

With respect to hydrocortisone dosing, experts have various opinions, he said, which basically comprise two methods: higher morning dosage or split dosages throughout the day. For testosterone dosing, the injectable form should be avoided due to high serum levels and pituitary suppression. Topical compounds with concentrations ranging from 1% to 10% are popular; for example, 30 gm of 5% concentration provides 1 gm of base cream and 50 mg of active drug/day. Testosterone alternatives and enhancers include human chorionic gonadotropin (hCG), DHEA, and medroxyprogesterone.

Noting a “new vocabulary” is needed for neuroregeneration therapy, Dr. Tennant explained that neurosteroids, hormones that control neurogenesis and neuroprotection, are produced in the CNS and have a steroid ring structure not under control of the pituitary adrenal-gonadal axis. This controls neurogenesis and neuroprotection. The pain-related functions of pregnenolone is neuroprotection; progesterone, neurogenesis; and DHEA, receptor regulation and nerve conduction.

Neuroregenerative hormones include hCG, progestins, pregnenolone, and oxytocin. The most promising research to date is with long-term use of hCG, he said. An open-label study in 26 patients with centralized pain who received hCG for 12 to 74 months resulted in pain free hours, permanent pain reduction, or less severe -flares. Two patients were able to come off opioids. The hair loss and headaches reported by patients were relieved when the dose was lowered.

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**Information  
Network**

**Dr. Hormone says,  
“Try to avoid long-acting  
opioids. Check out and  
replace hormones first.”**

