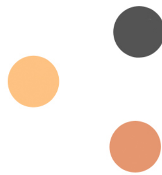

District Endocrine

Low Testosterone: Hypogonadism

- **Testosterone is a controlled substance** because it is a powerful anabolic steroid. It's job is to BUILD tissue, especially muscle mass, bone and even red blood cells. It's also an androgen, or a masculinizing hormone.
- Both men and women make androgens, of which testosterone is only one. Androgens can be produced in the ovaries/testes as well as in the adrenal glands.
- Low testosterone is distinct from erectile dysfunction, though they can be related. There are a few different types of low testosterone:
  - **Primary Hypogonadism** - this is failure of testosterone at the level of the testes. Sometimes patients are BORN with this, sometimes it's due to an injury to the testes, or due to surgical removal of testes for cancer, etc. They typically respond very well to treatment.
  - **Secondary Hypogonadism** - this is failure of testosterone production due to impaired signaling from the pituitary gland in the brain, or as a side effect to certain medications, classically narcotics. Sometimes patients respond very well, and other times they don't notice a difference after treatment.
- **How do we diagnose low testosterone?**
  - Patients must demonstrate BOTH clinical evidence of low testosterone (i.e., reduced hair growth, decreased libido, erectile dysfunction, depression, weakness, low volume ejaculate, reduced spontaneous morning erections, etc.) AND biochemical evidence of low testosterone (defined as total testosterone < 300 on 2 separate measurements).
- What if I have erectile dysfunction but my testosterone levels are NORMAL?
  - In that case we have to examine other reasons for the symptoms, and drugs like viagra or cialis are first line to treat ED.
  - If the patient cannot tolerate viagra or cialis, a urologist can help with finding a resolution to erectile dysfunction.
- How do we treat low testosterone?
  - First we have to make sure it's safe to give testosterone:
    - Prostate cancer history?
    - Enlarged prostate or high PSA? Urinary symptoms?
    - High blood counts or sleep apnea?

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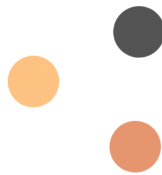

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        - Prior heart attack, heart failure or blood clots?
    - Testosterone can be administered in a few different formulations, depending on your insurance and preferences
        - Topical gel (Androgel) - this is administered on the shoulder(s) after a shower every day. Dose: 1-4 "pumps" daily.
        - Transdermal patch - placed on the skin daily.
        - Injection - this is a very potent method of treatment, historically these are INTRAMUSCULAR injections, but recent data suggests it can be administered subcutaneously as well. They are given as frequently as once weekly, to as infrequently as once monthly, depending on how the patient feels.
        - Pellet implants - these are extremely potent as well, and once implanted we are unable to adjust doses for safety parameters.
        - Oral testosterone – these are recently approved by FDA.
- How does testosterone affect prostate cancer?
    - As far as we know, giving testosterone does not cause prostate cancer, but if a patient has a tiny nodule of prostate cancer that they don't even know about, the testosterone can feed it. This is why we check PSA and rectal exam before starting treatment and at least once after starting treatment.
- How do we know treatment is effective?
    - **It's important to know that some men NEVER notice any difference with testo replacement, regardless of how big the doses are.**
    - In general, men report improved libido, spontaneous morning erections, improved erectile function, improved energy & mood.
    - **When symptoms persist despite adequate replacement, we must investigate other reasons for the symptoms.**
- What kinds of side effects are there to testosterone replacement?
    - There are very important safety parameters to manage testosterone.
        - The hematocrit blood count MUST be less than 50 in order to start testosterone, and it must remain less than 54 during treatment.

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- The PSA must be assessed prior to starting testosterone, and must be followed during treatment. If the value exceeds 4, OR the rate of change is too fast, we must stop testosterone replacement and schedule a visit with urology.

- **If either of these things happens, they warrant a HARD STOP to treatment until blood counts recover, usually about 4 weeks.**
- Testosterone replacement DIMINISHES fertility but should NOT be used as contraception.
- Additionally, some men who already have certain psychiatric diagnoses report that their condition worsens with testosterone treatment, and if this happens it's important to re-evaluate the risks/benefits to treatment.
- The body will NORMALLY convert testosterone to estrogen in fat cells, so as we give extra testosterone to patients, they can experience breast tenderness or growth. This can be treated with medication if necessary.

- It's important for bone health to have adequate testosterone, so if we diagnose low testosterone, we will also need to check bone density to see if that warrants treatment as well.

Resources

- Mayo Clinic: Male Hypogonadism www.mayoclinic.com
- https://pituitary.org/knowledge-base/disorders/hypogonadism
- Urology Care Foundation: TRT & ED http://www.urologyhealth.org/educational-materials/testosterone-therapy-a-patient-guide http://www.urologyhealth.org/educational-materials/erectile-dysfunction-brochure

- Author: Dr. VanDyke– edited by Dr. Rehman. Disclaimer:

  This article is not medical advice. It is intended for general informational purposes and is not meant to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. If you think you may have a medical emergency, immediately call your physician or dial 911.

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