**Adult Hypogonadism Work-up**

**Resource:**

Up-To-Date; [www.uptodate.com](http://www.uptodate.com)

**Definition:**

Decrease in on or both of the 2 major functions of the testes: sperm or testosterone production

**Symptoms:**

Decrease in energy, libido, muscle mass, and body hair, hot flashes, gynecomastia, and infertility

**Diagnosis:**

|  |  |
| --- | --- |
| **Primary** | **Secondary** |
| 1. **Congenital** | 1. **Congenital** |
| 1. **Acquired** | 1. **Acquired** |
| * Infections, especially mumps | * **Suppression of gonadotropins** |
| * Radiation | * + Hyperprolactinemia |
| * Alkylating agents | * + Gonadal steroid administration |
| * Suramin | * + Glucocorticoid treatment |
| * Ketoconazole | * + Critical illness |
| * Glucocorticoids | * + Chronic systemic illness |
| * Environmental toxins | * + Opiates |
| * Trauma | * + Diabetes mellitus |
| * Testicular torsion | * + Idiopathic |
| * Autoimmune damage | * + GnRH analogs |
| * Chronic systemic illnesses | * **Damage to gonadotroph cells** |
| * + Hepatic cirrhosis | * Benign tumors and cysts |
| * + Chronic renal failure | * Malignant tumors |
| * + AIDS | * Infiltrative diseases |
| * Idiopathic | * + Infections |
|  | * + Pituitary apoplexy |
|  | * + Trauma |
|  | * + Surgery in the sellar region |
|  | * + Radiation to the sellar region |

**Laboratory Results:**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Serum Level or Count\* | |
|  | Area involved | Sperm count and/or testosterone | LH and/or FSH |
| Primary | Testes | Below normal | Above normal |
| Secondary | Pituitary or hypothalamus | Subnormal+ | Normal or reduced |

\* Total testosterone level to be drawn around 8 AM

+ recommend repeat

**Treatment:**

* Only recommend treatment when a man has signs and symptoms consistent with androgen deficiency and has a subnormal testosterone level.
* Treatment goal is to restore the serum testosterone level to a normal range.
* *Treatment of males with decline in testosterone level within identifiable pituitary or hypothalamic disease is uncertain.*

**Testosterone Preparation**

|  |  |  |
| --- | --- | --- |
| **Name** | **Dosing** | **Additional Information** |
| Alkylated Testosterone | Oral | Liver toxicity- not recommended |
| Testosterone ananthate or Testosterone cypionate | 100mg IM Q weekly or  200mg IM Q 2 weeks or 300mg IM Q 3 weeks | 400mg Q 4 weeks not effective |
| Testosterone undecanoate  (Nebido) | 1000mg IM  1000mg IM in 6 weeks, then  1000mg IM Q 10-14 weeks | Normal range within 6-8 weeks |
| Transdermal patch  (Androderm) | 5mg on arm daily | Skin irritation |
| Transdermal gel   * AndroGel * Testim * Fortesta * Axiron | * 1%, 1.62% on skin daily * 1% on skin daily * 2% on skin daily * 2% on skin daily | * Normal range within 1 month * Has an odor * Normal range within 90 days * 30-120mg dose range |