**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 IM1000mg IM in 6 weeks, then1000mg 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
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