

## Male Hypogonadism Guidelines

### **Key points:**

Hypogonadism typically presents with low libido and decreased spontaneous erections. Less specific symptoms: fatigue, ED, hot flashes, muscle weakness, fragility fractures.

Screen symptomatic men by examining testes. Testes are typically the size of lentils in men with primary hypogonadism.

Measure AM fasting Free testosterone + LH and FSH. Test LH and FSH before initiating testosterone to distinguish primary from 2<sup>nd</sup> hypogonadism.

If 2<sup>nd</sup> hypogonadism, measure prolactin.

If hypogonadal, try to figure out the cause. Chronic opiates and morbid obesity frequently cause 2<sup>nd</sup> hypogonadism.

Monitor for complications of replacement including polycythemia, unmasking of prostate cancer, and DVT, particularly when thrombophilia present.

The most common cause of erectile dysfunction is endothelial dysfunction/vascular disease not low T. Stratify and mitigate ASVD risk in the man with ED.

### **Symptoms:**

Most specific: decreased libido and decreased spontaneous (AM) erections.

Less specific: erectile dysfunction, hot flashes, gynecomastia, fatigue, muscle weakness, delayed puberty, fragility fractures, infertility

### **Primary hypogonadism:**

Exam: Testicular atrophy (<3.5cm length/< 15 ml volume); eunuchoid dimensions if onset prior to puberty (arm span > height), gynecomastia, diminished body hair

Labs: Low free AM, fasting Testosterone,  
Elevated LH and FSH (FSH typically > LH)

Rarely individuals with symptomatic primary hypogonadism have a “normal” free testosterone and elevated LH and FSH (need to test all 3).

Etiologies: Testicular infection (mumps), trauma, torsion, Klinefelter (XXY), vanishing testes, cryptorchidism, hemochromatosis, chemo and/or radiation therapy.

### **Secondary hypogonadism (hypogonadotropic-hypogonadism):**

Exam: Testicular atrophy; visual field deficits if optic chiasmal compression; anosmia if Kallmann’s.

Labs: Low AM, fasting Free Testosterone, low or inappropriately normal LH and FSH. +/- elevated Prolactin.

Etiologies: Pituitary or hypothalamic dysfunction- pituitary tumors/surgery, empty sella, **opiates, morbid obesity**, Kallmann syndrome (anosmia), hemochromatosis, androgen suppression Rx. (Lupron), chronic anabolic steroid exposure, HIV, chronic glucocorticoid steroids, medications which elevate prolactin, catabolic states, acute illness.

Obesity and metabolic syndrome frequently cause 2<sup>nd</sup> hypogonadism. 40 % of men > 45 yrs. with BMI > 30 have low T levels. Men with BMI > 35-40 have a 50% reduction in total and Free T compared to lean men.

Obesity induced hyperinsulinemia also reduces sex hormone binding globulin - total testosterone disproportionately < than free testosterone.

2/3 of men who chronically use opiates have low testosterone.

Causes of elevated prolactin in men: prolactin secreting pituitary adenomas; pituitary stalk lesions (stalk effect-disinhibition of prolactin secretion); primary hypothyroidism; renal failure; drugs: metoclopramide, antipsychotics, verapamil; macroprolactinemia.

#### Labs to diagnose hypogonadism:

AM Free Testosterone, fasting

**Test LH and FSH prior to initiating testosterone therapy** (exogenous testosterone suppresses LH and FSH)

If 2<sup>nd</sup> hypogonadism, screen prolactin, TFTs, cortisol, iron profile, ferritin.

If 2<sup>nd</sup> hypogonadism recommend pituitary MRI if T < 150; < 250 in younger men (< age 40).

Other studies to consider once hypogonadism established: CBC (baseline), PSA (baseline), CMP, DEXA, iron studies, karyotype if Klinefelter's suspected, DEXA, HIV

#### Treatment:

Titrate replacement to achieve a physiologic testosterone level.

IM Testosterone cypionate 50-100 mg weekly or 100-200 mg every 2 weeks; inexpensive with a Good Rx coupon (\$39.94 for 10 ml, 200 mg/cc at Walgreens = 5month supply if giving 200 mg/ q 2 weeks)

Topical testosterone gel or solution are generic.

Compounded cream or gel may reduce the cost for topical testosterone.

An oral formulation, testosterone undecanoate recently approved but cost may be prohibitive.

Also increases ambulatory BP by 4.9 mm.

Other modalities: implantable pellets, IM testosterone undecanoate (3ml q 10 weeks after initial dose followed by 2nd injection at 4 weeks), nasal testosterone.

Functional hypogonadism 2<sup>nd</sup> to obesity can be treated with clomiphene 50 mg /3 days/week- M/W/F.

Weight loss can reverse 2<sup>nd</sup> hypogonadism of obesity.

If enhanced spermatogenesis/fertility desired in setting of 2<sup>nd</sup> hypogonadism, recommend HCG 1000-2000 units IM or SQ 3 times a week.

#### Complications of Testosterone Rx /Surveillance:

Polycythemia (monitor HCT/HGB - check 3 months after initiating Rx and reduce dose if HCT> 53; recommend phlebotomy if HCT > 53; add baby ASA. Polycythemia more prevalent in men with untreated sleep apnea.

PSA elevation /risk of stimulating prostate Ca. Recommend monitoring PSA: baseline, 3 months after initiating therapy and then annually.

Refer to urologist if PSA >1.4 above baseline PSA or absolute PSA >4.

DVT; avoid testosterone therapy if high risk for DVT/thrombophilia.

Infertility and testicular atrophy 2<sup>nd</sup> to testosterone suppression of FSH and LH.

? increase cardiovascular events- the jury is still out.

Gynecomastia.

**Contraindications for testosterone Rx:**

If fertility desired (testosterone suppresses FSH/spermatogenesis)  
Active prostate cancer or high risk for recurrent prostate cancer  
PSA > 4; PSA > 3 with increased risk of prostate cancer  
Severe lower urinary tract symptoms  
Elevated HCT  
Untreated sleep apnea  
CHF/Edema  
MI or CVA in the prior 6 months (higher risk of a 2nd event 6 months following an initial event)  
Thrombophilia  
Breast cancer

Aging is associated with a decline in testosterone levels. Decision to treat in the older male predicated on severity and assessment of the risk/ reward.

