

Male Hypogonadism in Diabetes

Definition

Male hypogonadism is a clinical syndrome of symptoms, with or without physical signs, in conjunction with biochemical evidence of testosterone deficiency.

- Classically, hypogonadism occurs due either to primary testicular failure or to a disruption in the hypothalamic-pituitary-testicular pathway.
- The term late-onset hypogonadism (LOH) is now widely used for testosterone deficiency associated with ageing; however, this term should only be used once other causes of hypogonadism have been excluded.

Classification

Primary hypogonadism (primary testicular failure) may occur as a result of congenital (eg Klinefelter's syndrome) or acquired causes (eg testicular trauma or radiation).

Secondary hypogonadism (secondary testicular failure) is due to congenital or acquired failure of the hypothalamus and/or pituitary.

Symptoms

- Reduced or loss of libido
- Reduced quality and frequency of erections
- Fatigue, reduced physical strength and endurance
- Mood change – depression and irritability
- Sleep disturbance
- Reduced motivation
- Hot flushes and sweats
- Change in body composition (less lean body mass and increased visceral fat)
- Loss of muscle mass (sarcopaenia)
- Decreased body hair and skin alterations
- Gynaecomastia
- Sub fertility
- Reduced bone mineral density
- Low haematocrit

Diagnosis of hypogonadism

Who should be tested?

- All patients with type 2 diabetes who present with erectile dysfunction
- Patients with clear and unequivocal symptoms of hypogonadism
- Patients suspected of primary or central hypogonadism due to other clinical conditions

Investigations:

- 2 fasting plasma testosterone levels before 11 am (testosterone has a circadian rhythm – highest at 06:00-08:00, lowest at 18:00), one week apart, in the presence of symptoms of hypogonadism
- Sex hormone binding globulin (SHBG) to aid in the calculation of free or bioavailable testosterone in borderline cases
- Other tests to establish underlying cause of hypogonadism (eg pituitary hormones, karyotype, imaging etc)
- Referral to Endocrinologist normally required

Interpretation of plasma testosterone:

- <8.0 nmol/l: consistent with hypogonadism (consider referral to endocrinologist)
- 8.0-12.0 nmol/l (<10.4 nmol/L – hypogonadism more likely): possible hypogonadism and may justify trial of testosterone replacement (consider referral to endocrinologist)
- >12.0 nmol/l: not hypogonadal