Androgen deficiency (AD)

- Androgen deficiency is common, affecting 1 in 200 men under 60 years
- The clinical presentation may be subtle and its diagnosis overlooked unless actively considered

The GP's role

- GPs are typically the first point of contact for men with symptoms of AD
- The GP's role in the management of AD includes clinical assessment, laboratory investigations, treatment, referral and follow-up

Androgen Deficiency and the Ageing Male

- Ageing is associated with a 1% decline per year in serum total testosterone starting in the late 30's
- The decline may be more marked in men who have obesity
- Some estimates suggest that AD affects 1 in 10 men over 60 years
- Acute and chronic illness result in decreased serum testosterone and may present with AD-like symptoms
- The role of Testosterone Replacement Therapy (TRT) in older men with modest declines in serum testosterone remains controversial
- The most consistent effects of TRT are on:
  - body composition
  - selected aspects of mood and cognition
  - libido
- Studies of men with age related AD have not shown any significant improvement in sexual function (erectile function) with TRT
- The use of TRT for ageing men who do not meet the established criteria (PBS guide) is not recommended
- Older men treated outside of guidelines should be informed that long-term risks/benefits are not yet documented

Diagnosis

Medical history

- Undescended testes
- Surgery of the testes
- Pubertal development
- Previous fertility
- Genito-urinary infection
- Co-existent medical illness

- Change in general well-being or sexual function
- Degree of virilisation
- Prescription or recreational drug use

- Refer to Clinical Summary Guides 1-3

* Pituitary disease, thalassemia, haemochromatosis. ** AD is an uncommon cause of ED. However, all men presenting with ED should be assessed for AD.

Examination and assessment of clinical features of AD

Pre-pubertal onset – Infancy
- Micropenis
- Small testes

Peri-pubertal onset – Adolescence
- Late/incomplete sexual and somatic maturation
- Small testes
- Failure of growth of the larynx
- Genital (failure of enlargement of penis and skin of scrotum becoming thickened/pigmented)
- Poor muscle development
- Poor facial, body and pubic hair
- Gynaecomastia

Post-pubertal onset – Adult
- Regression of some features of virilisation
- Mood changes (low mood, irritability)
- Poor concentration
- Low energy (lethargy)
- Hot flushes and sweats
- Decreased libido
- Reduced beard or body hair growth
- Low semen volume
- Gynaecomastia
- Reduced muscle strength
- Fracture (osteoporosis)
- Erectile dysfunction (uncommon)

Laboratory assessment of AD

- Normal range serum total testosterone 8-27nmol/L
- Two morning samples of serum total testosterone*, taken on different mornings.
- Guidelines for the diagnosis of AD in men aged 40+:
  - Testosterone <8nmol/L**
  OR
  - Testosterone 8-15nmol/L** and LH >1.5 x upper limit of eugonadal reference range for young men

* If a second total testosterone sample is indicated, a LH level should also be ordered.
** These criteria apply to men without underlying pituitary or testicular pathology.

Other investigations

- SHBG/calculated free testosterone (selected cases – obesity, liver disease)
- Semen analysis (if fertility is an issue)
- Karyotype (if suspicion of Klinefelter’s syndrome, 47XXX)

Investigations if low total testosterone with normal or low LH/FSH:

- Serum prolactin (prolactinoma)
- Iron studies (haemochromatosis)
- MRI (various lesions)
- Olfactory testing (Kallmann’s syndrome)
CLINICAL SUMMARY GUIDE

Klinefelter's syndrome

Is the most common genetic male reproductive disorder
• (1 in 650 men)
Is the most common cause of hypogonadism
• Reproductive features: small firm testes <4mls, infertility, failure to progress through puberty, gynaecomastia, eunuchoidal proportions, diminished or absent body hair, decreased skeletal muscle mass
Other: learning difficulties & behavioural problems, particularly in adolescence

Refer to Clinical Summary Guide 10

Clinical notes and contraindications

• Absolute contraindications to TRT are known or suspected hormone-dependent malignancies (prostate or breast) or hematocrit >55%
• Relative contraindications include hematocrit >52%, untreated sleep apnoea, severe obstructive symptoms of BPH and advanced congestive heart failure
• Fertility: Exogenous testosterone results in suppression of spermatogenesis in eugonadal men. For men with secondary causes of AD, and in whom fertility is desired, gonadotropin therapy should be instituted
• Low-normal serum testosterone common in obesity or other illness may not reflect AD. Address underlying disorders first
• Withhold treatment until all investigations are complete
• Certain adverse effects must be prospectively sought, especially in older men, including polycythemia and sleep apnoea, however the testosterone preparations discussed do not cause abnormal liver function

© Andrology Australia May 2010