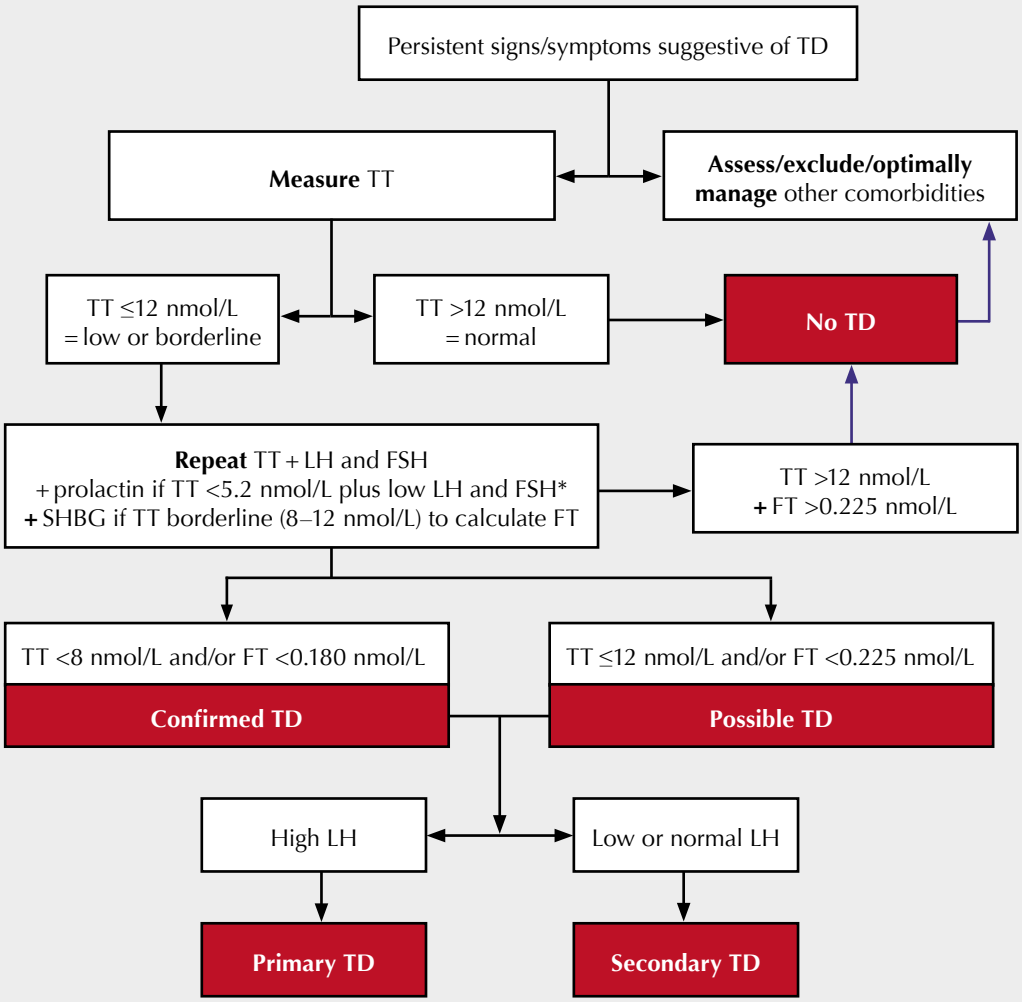
Diagnosing testosterone deficiency



Adapted from Minhas and Mulhall, 2017[6].

FSH=follicle-stimulating hormone; FT=free testosterone; LH=luteinising hormone; SHBG=sex hormone-binding globulin; TD=testosterone deficiency; TT=total testosterone.

*For men with TT levels <5.2 nmol/L plus low LH and FSH, or increased prolactin levels, refer to endocrinology or arrange a pituitary MRI scan to exclude a pituitary adenoma[4,7].

About this series

The aim of the "How to" series is to provide readers with a guide to clinical procedures and aspects of diabetes care that are covered in the clinic setting.

What and why

- Testosterone deficiency (TD) is associated with a variety of physical and psychological effects that can compromise general well-being, sexuality and fertility[2,3].
- TD is an increasingly common problem, mainly due to increased life expectancy and a greater prevalence of risk factors, including obesity, type 2 diabetes, the metabolic syndrome and a sedentary lifestyle.
- While diagnosing and managing TD can be challenging, it is both feasible and rewarding in primary care.
- To help facilitate this, the BSSM has published a guideline on the diagnosis and management of TD[1], based on the latest available evidence.

Citation: Kirby M (2018) How to diagnose and manage testosterone deficiency in adult men. *Diabetes & Primary Care* **20**: **169–70**

Screening

Screen for TD in men:

- with consistent and multiple signs of TD;
- with ED, loss of spontaneous erections or low sexual desire;
- with T2D, BMI >30 kg/m² or WC >102 cm (40.2");
- on long-term opiate, anticonvulsant or antipsychotic medication.

History taking

- Enquire about TD symptoms (e.g. hot flushes, sleep disturbances, muscle loss or strength, changes in mood, cognitive function, sexual function and libido[4]).
- Note previous and current prescription and non-prescription drug use[2].
- Assess and exclude systemic illness, ongoing acute disease, malabsorption and malnutrition[2].
- Consider the use of validated questionnaires (e.g. the ADAM questionnaire, included in the Sexual Advice Association SMART SAA app (http://bit.ly/2EKjTcd), or the AMS Scale (http://bit.ly/2SdtN8C). For information on interpreting the scores, visit http://bit.ly/2OLjUB6.

Physical examination

- Measure height, weight, BMI and WC[8].
- Look for any gynaecomastia, decreased body hair, loss of height or muscle mass, and abnormalities of the penis, testicles and scrotum[8].
- Check the prostate via DRE[2]
- Arrange blood investigations, including PSA and haematocrit, and appropriate tests based on physical findings and to determine cardiovascular risk.

Laboratory diagnosis

Screen for TD in men:

- Measure serum T before 11 a.m., with a reliable method, on at least two separate occasions.
- Obtain fasting levels, where possible.
- For calculation of FT, an online calculator and app, sponsored by PCTAG, can be found at: http://bit.ly/2q8raIo.

ADAM=androgen deficiency in the ageing male; AMS=ageing males' symptoms; DRE=digital rectal examination; ED=erectile dysfunction; FT=free testosterone; PCTAG=Primary Care Testosterone Advisory Group; PSA=prostate-specific antigen; T=testosterone; T2D=type 2 diabetes; WC=waist circumference.

References

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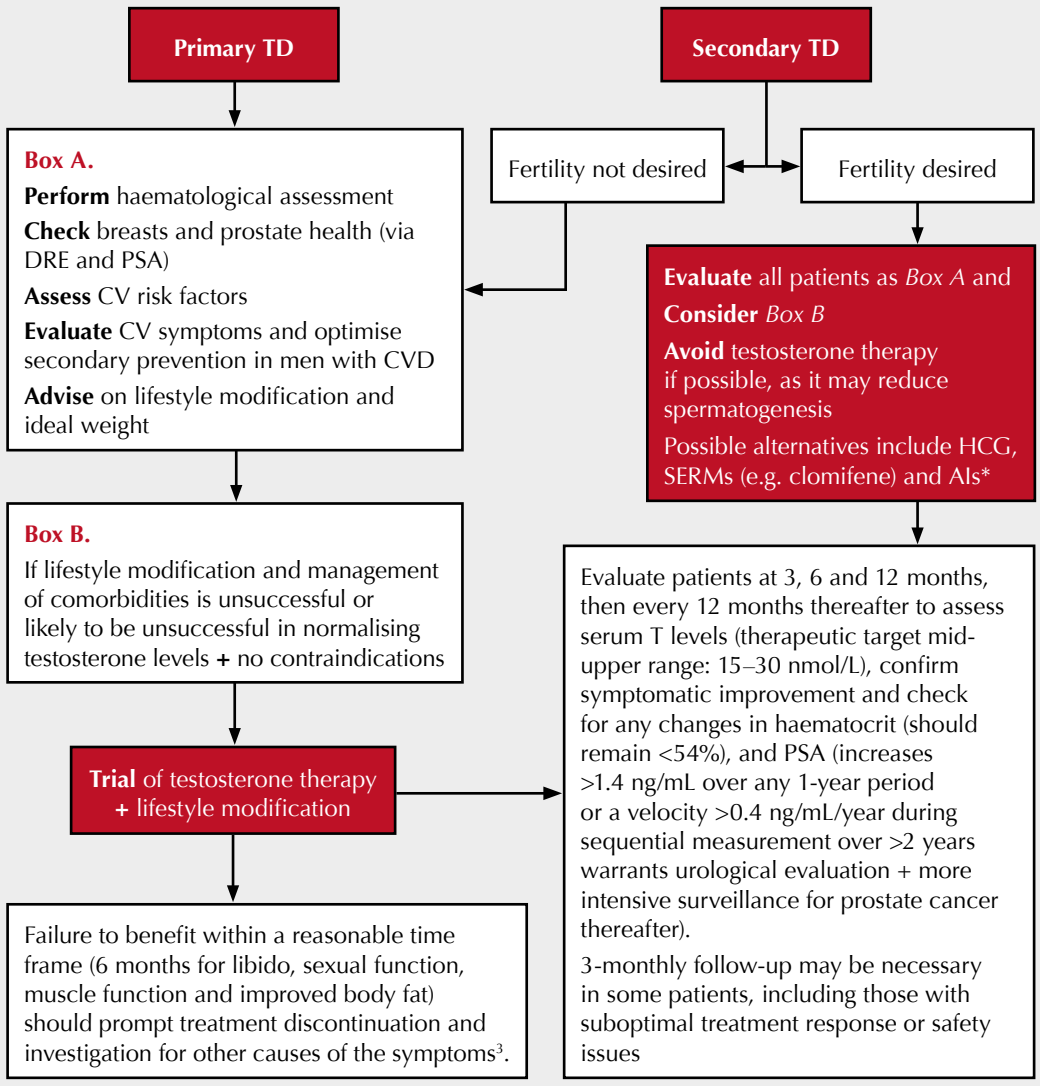
Author

Mike Kirby, Visiting Professor, Faculty of Health and Human Sciences, University of Hertfordshire.

Managing testosterone deficiency



Adapted from Minhas and Mulhall, 2017[6].

AI=aromatase inhibitor; CVD=cardiovascular disease; DRE=digital rectal examination; HCG=human chorionic gonadotropin; PSA=prostate specific antigen; SERM=selective oestrogen receptor modulator; T=testosterone.

*These drugs should not be used if pituitary function is compromised. SERMs and AIs are not currently licensed for TD.

Testosterone therapy and ED

- Testosterone therapy is an appropriate treatment for ED[3,9], particularly when:
  - TT levels are <8 nmol/L[9]
  - oral medications have failed and TT levels are <10.4 nmol/L[10].
- Testosterone therapy may also reduce the need for more invasive and expensive second- and third-line ED treatments[11].
- A PDE5i can be prescribed when starting testosterone therapy, in the absence of any contraindications, as it can take many months for testosterone therapy to correct ED.

Contraindications to testosterone therapy

- The main contraindications include[2]:
  - prostate cancer (locally advanced or metastatic)
  - male breast cancer
  - a desire to father children
  - haematocrit >54%
  - severe chronic heart failure (NYHA class IV).
- An unevaluated prostate nodule or induration, raised PSA, untreated sleep apnoea and severe LUTS may be additional contraindications[7,8]. These conditions should be fully investigated and their management optimised where possible, prior to starting testosterone therapy.

ED=erectile dysfunction; LUTS=lower urinary tract symptoms; NYHA=New York Heart Association; PDE5i=phosphodiesterase type-5 inhibitor; PSA=prostate specific antigen; TT=total testosterone.