

Men's Health Issues:

Andropause and Erectile Dysfunction



Andries Muller, MBChB, CCFP

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Andropause (or more accurately, late onset hypogonadism in men) and erectile dysfunction are both very common conditions in family medicine practice.

Andropause

There have been many names for this now fully recognized condition, the latest being late onset hypogonadism in aging men (LOHAM). Other names in the past were androgen deficiency in the aging male (ADAM), partial androgen deficiency in the aging male (PADAM) and male menopause.

It is known that testosterone levels decline by about 1% per year after the age of 50.

The definition of LOHAM is perhaps a bit long but does say it all—it is a clinical entity in men, associated with advancing age and characterized by deficient serum androgen levels and related symptoms, potentially resulting in alteration in quality of life and adversely affecting multiple systems.

It is known that testosterone levels decline by about 1% per year after the age of 50. This is due

Meet Robert

Robert is a 64-year-old male. He complains of chronic tiredness and frequently falls asleep in front of the TV.

When asked, he also admits to being irritable and suffers from a low libido. His muscle strength has decreased and he has noticed decreased hair growth. He also has fewer morning erections.

On examination, his BP is 140/88 mmHg and pulse 65/min. His BMI is 32 and abdominal circumference is 145 cm. Digital rectal examination (DRE) reveals a small prostate with no nodules. Testicles are smaller than expected (10 ml and 12 ml respectively).

Special investigations showed a free androgen index of 11 (normal 14.9–94.8) and an elevated luteinizing hormone (LH). Prostate specific antigen (PSA), hemoglobin (Hb), liver function tests (LFTs), TSH and prolactin were normal.

to less testosterone production, secretion and peripheral conversion. Testosterone receptor responsiveness is altered and sex hormone binding globulin (SHBG) increases. This leads to less bio-available testosterone. Because of this, it does not make sense to measure total testosterone levels. The measurement of choice is bio-available testosterone (or free androgen index in some labs). The sample needs to be collected between 8 a.m. and 11 a.m. to mimic the normal circadian rhythm.



Table 1

Physical and psychological symptoms

- Fatigue
- Decrease in:
 - General well-being
 - Libido
 - Erection quality
 - Intellectual activity
 - Lean body mass
 - Muscle volume and strength
 - Bone mineral density
 - Height
 - Hematopoiesis
- Mood changes (*i.e.*, depression, irritability)
- Increase in visceral fat

Table 2

Androgen deficiency in the aging male (ADAM) questionnaire

1. Do you have a decrease in libido (sex drive)?
2. Do you have a lack of energy?
3. Do you have a decrease in strength and/or endurance?
4. Have you lost height?
5. Have you noticed a decreased "enjoyment of life"?
6. Are you sad and/or grumpy?
7. Are your erections less strong?
8. Have you noticed a recent deterioration in your ability to play sports?
9. Are you falling asleep after dinner?
10. Has there been a recent deterioration in your work performance?

"Yes" to three or more questions or to #1 or #7 constitutes a positive screening test.

It is sometimes difficult to distinguish between LOHAM and depression although it is common for these two conditions to co-exist in the same patient. It is therefore important to measure the available androgen in the serum. The ADAM questionnaire (Table 2) might be a useful screening tool in order to determine who should go for further testing.

Physical examination

The physical examination is aimed at identifying any endocrinological abnormalities:

- Testicular examination
- Hair distribution
- Evaluation of musculature, central obesity and posture (round shoulders, frailty)
- Prostate examination (before testosterone therapy)
- Examine for liver or renal failure

Dr. Muller is an Assistant Professor and Resident Training Coordinator, Saskatoon Division, Department of Academic Family Medicine, University of Saskatchewan, Saskatoon, Saskatchewan.

Special investigations

Other causes can be ruled out by doing a diabetes screen, TSH, luteinizing hormone (LH), follicle stimulating hormone (FSH) and prolactin. Before treatment with testosterone it is necessary to check the hemoglobin level, liver functions and prostate specific antigen (PSA).

It has been shown now that testosterone therapy, in someone that has true hypogonadism, does not cause prostate cancer.

Treatment

Testosterone replacement therapy is the treatment of choice for LOHAM. The only contraindications are breast cancer, suspected prostate

Table 3
Available treatment options in Canada

Mode of delivery	Generic name	Dose
Oral	Testosterone undecanoate	160 mg-240 mg divided Start 80 mg AM and 40 mg PM
Injectable	Testosterone cypionate	100 mg-150 mg every 2-3 weeks IM
	Testosterone enanthate	100 mg-150 mg every 2-3 weeks IM
Transdermal	Testosterone-USP patch	2.5 mg-7.5 mg q.d.
	Testosterone-USP 1% gel	5 g-10 g q.d.

IM: Intramuscularly

cancer, or a known hypersensitivity to the testosterone preparations. It has been shown now that testosterone therapy, in someone that has true hypogonadism, does not cause prostate cancer. The available treatment options in Canada are mentioned in Table 3.

Monitoring

Monitoring should be at three, six and 12 months and then annually. It should include a hemoglobin level, PSA, digital rectal examination (DRE) and maybe initially a liver function test.

Erectile dysfunction

The definition of this common condition is a consistent or recurrent inability of a man to attain and/or maintain a penile erection sufficient for sexual activity. The causes could be:

- Organic 25% (neurogenic, vasculogenic, endocrine, drugs, radiotherapy, surgical, chronic renal failure, aging)
- Psychogenic 25%
- Mixed 45%
- Unknown 5%

History

It is important to obtain a thorough sexual history to make sure exactly what the nature of the problem is. This includes inquiring about orgasm, ejaculation, genital pain and libido. It is also

important to identify possible risk factors such as unstable CV problems, diabetes, trauma, etc.

Physical examination

A general examination should be done for signs of hypogonadism, as well as a focused examination of the penis (Peyronie's), prostate (infections, benign prostatic hyperplasia, cancer) and testis (cancer and infections).

FAQ

Wouldn't testosterone replacement therapy cause prostate cancer?

There is enough evidence that the risk for prostate cancer in hypogonadal men is low to begin with and that testosterone therapy will only aggravate existing prostate cancer. It is for this reason that it is necessary to screen for prostate cancer before testosterone treatment.

FAQ

Is a low testosterone level the cause of erectile dysfunction?

Low testosterone can cause a decrease in libido but is not directly linked to erectile dysfunction.



Table 4

Range of oral medications

	Sildenafil	Tadalafil	Vardenafil
Half life	4 hours	17.5 hours	4 hours
Max threshold	1 hour	2 hours	1 hour
Onset	30 min–60 min	30 min	20 min–60 min
Duration	6 hours	36 hours	5 hours
Usual start dose	50 mg	20 mg	10 mg
Available doses	25 mg, 50 mg, 100 mg	5 mg, 10 mg, 20 mg (and 5 mg q.d. dosing)	5 mg, 10 mg, 20 mg
Max dose	100 mg	20 mg	20 mg
Food	Fatty meals delay onset by 60 min	No effect	No effect unless high-fat meal
Alcohol	No effect	No effect	No effect
Side-effects	Headache, flushing, dizziness, dyspepsia, rhinitis, altered vision	Headache, dyspepsia, dizziness, flushing, nasal congestion, back pain, myalgia	Flushing, headache, dyspepsia, nausea, dizziness, rhinitis

Take-home message

LOHAM (andropause):

- Testosterone declines after age 50
- Measure available bio-testosterone from a sample taken between 8 a.m. and 11 a.m.
- Pre-treatment testing includes Hb, LFTs, DRE, PSA and lipids
- Treat with testosterone replacement
- Monitor at 3, 6 and then 12 months

Erectile dysfunction:

- Obtain a thorough sexual history
- Do a focused examination
- Give patient enough information about the treatment options
- Do not forget about the non-oral treatment options

LOHAM: Late onset hypogonadism in aging men.

Special investigations

Depending on the physical examination, screening should be done for diabetes, hyperlipidemia and hypogonadism.

Treatment

Although the main focus nowadays is on phosphodiesterase type 5 (PDE-5) inhibitors, there are still cases where this form of treatment is not appropriate. Other options that are still used with success are vacuum pumps, intracavernosal prostaglandin injections, intraurethral prostaglandin suppositories and surgical implants.

The range of oral medications is listed in Table 4. I find it helpful to educate the patient about the different options and then let him make a decision himself.

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Resources

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5. Canadian Society for the Study of the Aging Male. www.cssam.ca. Accessed June 7, 2008.