Hormonal Decline in Elderly Men AND Male Menopause

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ABSTRACT
Much has been written about female menopause, but hormonal decline in men indicative of a similar menopause is a relatively new concept. Hormonal decline in men is a gradual and often occult process. Many men do not experience noticeable symptoms, but those who do usually experience a decline in sexual desire and ability that may be attributed to aging. Some men may hide these symptoms. Hormonal replacements and herbal therapies may be helpful. Nurses must conduct careful histories and physical examinations to elicit disclosure of symptoms of hormonal decline in this population. (Geriatr Nurs 2001;22:24-8)

In recent years, the physical and psychosocial aspects of hormonal withdrawal for menopausal women have received a great deal of attention in both professional and consumer literature. As men age, they too experience a decline in sexual hormones that may affect their physical health and emotional well-being.

SYNDROME OF HORMONAL DECLINE
Hormonal decline in aging men has been categorized by a variety of terms—male menopause,1 male change of life, andropause, and viropause. Some authors have objected to the association of the syndrome with female menopause because of the gender differences in hormonal decline.2 In women, menopause technically is an abrupt and almost total decline in female hormones.
that typically takes place between the ages of 46 and 52. For men, testosterone decline can begin in middle age and gradually decrease until the end of life. Although men may experience a variety of physical and psychosocial symptoms with testosterone withdrawal, they do not lose their fertility. One group of authors has suggested that the male hormonal decline be termed ADAM, androgen decline in the aging man. Accordingly, ADAM has been described as a clinical entity characterized by biochemical decrease in serum androgen, growth hormone, melatonin, and dehydroepiandrosterone. A typical man loses 12 to 20 pounds of muscle, 15% of bone mass, and nearly 2 inches of height between the ages of 40 and 70.

RISK FACTORS FOR HORMONAL DECLINE

In women, menopause is an inevitable and universal occurrence. All women experience estrogen and progesterone withdrawal and cessation of ovarian function. In men, the experience of hormonal decline varies greatly. That is, some men may maintain a fairly steady state of testosterone and other sex hormones over time; others may experience a decline in their 40s that continues gradually throughout life.

Several researchers have attempted to explore the reasons why some men experience a greater hormonal decline than others. The association between age at onset of androgen withdrawal and ethnic origin, smoking, alcohol consumption, hypertension, and cerebrovascular disease was explored in a sample of 302 male veterans. The investigators found that the only variable significantly related to early onset of male hormonal withdrawal was smoking. These results are consistent with studies of women in which smoking has been positively correlated with early menopause.

COMMON SIGNS AND SYMPTOMS OF HORMONAL DECLINE

The symptoms of male hormonal withdrawal can be divided into three categories—physical, psychologic, and sexual symptoms as a result of hormonal decline with aging. Physical symptoms include fatigue, decreased endurance for physical exercise, decreased muscle strength, sleep disturbances, loss of short-term memory, increased body fat, and increased urinary frequency. Psychologic symptoms are irritability, depression, anxiety, loss of self-confidence, difficulty concentrating, and indecisiveness. Sexual symptoms are probably the most bothersome for many older men and may be the chief complaint that causes an aging man to seek medical attention. Hormonal decline in aging men can lead to decreased libido, impotence, erectile dysfunction, and an overall reduced interest in sex.

Men’s bodies change as they age. It has been well documented that aging men undergo changes in body composition, fat distribution, and serum lipoprotein levels. Although some have postulated that these physiologic changes may be a result of testosterone decline, researchers recently concluded that, in a small group (n = 206) of healthy volunteers, androgen decline was not significantly related to changes in body composition and lipid metabolism.

EVALUATION AND TREATMENT

The physical and psychologic signs and symptoms commonly associated with aging could be a result of hormonal decline or have a myriad other pathophysiological and emotional causes. A complete history and physical examination should be conducted with elderly male patients to establish a diagnosis of androgen deficiency or hypogonadism. In addition to typical baseline laboratory assessments, clinicians should find it helpful to obtain a baseline total testosterone level as an initial screening test for patients with suspected hypogonadism. Normal total testosterone levels range from 270 ng/dL to 1070 ng/dL. Patients with levels below 270 ng/dL are considered candidates for testosterone replacement therapy (TRT). Some authors recommend that if the total testosterone concentration is low, measuring free testosterone levels to confirm the diagnosis of hypogonadism may be advisable. Free testosterone levels in middle-aged men range from 9 to 26 ng/dL.

Before initiating any type of androgen therapy, however, the patient must be screened for prostate cancer because the disease is an absolute contraindication to TRT. All patients should have a digital rectal examination and a measurement of their prostate specific antigen before testosterone therapy.

The decision to pharmacologically treat an older patient for low testosterone levels must be reached jointly with the patient after a lengthy discussion of the options. Research of the available products suggests that TRT may help relieve some of the signs and symptoms of deficiencies. Additionally, some evidence suggests that men at risk for or currently diagnosed with osteoporosis may benefit from TRT.

The TRT choices are limited somewhat, but a few newer products have helped broaden the choices for
providers and patients. Current options include prescription topical agents available from pharmaceutical companies, topical preparations ordered from compounding pharmacists, and nonprescription oral supplements.

PRESCRIPTION CHOICES

Topical preparations of TRT have been available for a number of years. Early products were available only in the form of scrotal patches, which often required patients to shave their testes for the patches to remain intact once applied. The inconvenience of these products resulted in limited prescriptions written and decreased patient adherence to the therapy. In recent years, however, pharmaceutical companies have improved the delivery mechanisms, and at least two available testosterone patches may be applied to the patient’s arm, back, or upper buttocks.

Androderm, indicated for the treatment of hypogonadism, is available in a 2.5 mg patch applied twice a day or a 5 mg patch that provides a continues dose of testosterone for 24 hours. In clinical trials, mild to moderate skin irritation was the most frequently reported side effect of this therapy.7

Testoderm testosterone transdermal system (TTS) has been available as a scrotal patch for several years. In 1998 it was reformulated so it could be applied alternatively as a patch to the patient’s arms, back, or upper buttocks. Testoderm TTS also is indicated for hypogonadism. In clinical trials, the most frequently reported side effects were transient itching and headache.8

Androgel, the newest product available, was approved in 2000 to treat hypogonadism. Androgel is a clear gel containing 1% testosterone that is applied in a single dose to the skin of the shoulders, upper arms, and abdomen every 24 hours. In clinical trials, the most frequently reported side effects were dry skin, skin irritation, and hirsutism.9 The recommended starting dose of Androgel is 5 g (which delivers 50 mg of testosterone) per day. The dosage may be increased to 7.5 or 10 g per day, depending on patient response and tolerability.

All patients on testosterone therapy should be followed closely by their health care providers. Hemoglobin and hematocrit levels should be checked periodically to detect polycythemia. Liver function, prostatic specific antigen, cholesterol, and high-density lipoprotein also should be monitored. All topical testosterone substances are considered Schedule III controlled substances as defined by the Anabolic Steroids Control Act. Providers must have the authority to prescribe controlled substances in their individual states to legally prescribe these drugs.

COMPounding PHARMACY PRODUCTS

A compounding pharmacist also can devise a testosterone product that may be as effective as those marketed by pharmaceutical companies, and the cost may be reduced somewhat for the patient. Compounding pharmacists have the ability to derive TRTs in the form of creams, gels, or troches that contain varying amounts of hormone.

NONPRESCRIPTION PRODUCTS

Older men may find several products through Internet sources or local health food stores. These products are not controlled by the Food and Drug Administration; therefore data regarding their safety and efficacy is limited. However, some products purchased from reputable suppliers may be beneficial. For example, dehydroepiandrosterone (DHEA), a major steroid secreted by the adrenal glands, is made from cholesterol and is a substrate for estrogen and testosterone production. For that reason, it has been recommended to prevent heart disease, enhance libido, prevent osteoporosis, and ease depression. Recommended daily doses of DHEA vary widely among companies, ranging from 3 to 2000 mg. Importantly, the patient’s serum DHEA sulfate level should be measured before advising replacement with these products. Although several small, short-term studies have been conducted on DHEA, the results are preliminary and even contradictory in some cases.10

Horny goat weed is a botanical complex that contains Epimedium grandiflorum, Maca (lepidium meyenii), L-dopa, and other botanic extracts. It is marketed in 60 mg tablets and readily available by Internet or health food store sources. According to the manufacturer, the product has been used for years in China and Japan under the names Yin Yang Huo and Herba Epidemii. In this country, the plant is claimed to enhance sexual performance by increasing testosterone production, energy, and well-being. In some consumer forums, it is touted as a natural form of Viagra (sildenafil), although no clinical trial data exist to support that claim.

NutriMan TNT also is marketed as a natural sexual stimulator. An herbal blend of yohimbe, aveena sativa, and additional extracts, the substance boosts male libido, strengthens the reproductive system, improves erections, and builds stamina—according to the manufacturers.

NURsING IMPLICATIONS AND CONCLUSIONS

Hormonal decline in men is a relatively new concept for many patients and health care providers. For women, menopause and its accompanying abrupt ovarian failure have gained a great deal of recognition, and
the pharmaceutical industry has responded with a proliferation of helpful products.

In men, however, hormonal decline is a much more gradual and occult process. Many men probably do not experience notable symptoms. Those that do experience decline in sexual ability and other changes may consider these issues a normal part of aging. Alternatively, they may mask or hide the symptoms or overuse alcohol to compensate for unsatisfactory changes in their body image and ability.

Nurses must conduct careful histories and physical examinations to elicit disclosure of symptoms of hormonal decline in their elderly male patients. Many men experience problems that may respond to pharmacologic therapy, although hormonal replacement or other herbal and natural supplements are not necessary for every man. The pharmaceutical industry recently has recognized the market of aging men and the potential benefits of androgen replacements. These products have value for some elderly male patients with documented hypogonadism. Care must be taken to identify men who would truly benefit from replacement or herbal therapies and advise them accordingly.

REFERENCES


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1. Androgen decline in the aging man (ADAM) is characterized by all of the following EXCEPT:
   A. Decreased serum androgen
   B. Infertility
   C. Decreased growth hormone
   D. Loss of muscle and bone mass

2. Which of the following was shown to relate to early onset of male hormonal withdrawal?
   A. Alcohol consumption
   B. Hypertension
   C. Smoking
   D. Ethnicity

3. Dehydroepiandrosterone is recommended for the following EXCEPT:
   A. Increased testosterone production
   B. Enhanced libido
   C. Prevention of osteoporosis
   D. Lessening effects of depression

4. Horny goat weed is associated with:
   A. Osteoporosis prevention
   B. Natural form of Viagra
   C. Easing the affects of depression
   D. Calming anxiety

5. Hormonal decline in aging men also is called any of the following terms EXCEPT:
   A. Male menopause
   B. Androphase
   C. Virophase
   D. Antipuberty

6. Declining testosterone levels in the aging man:
   A. Are abrupt and similar to female menopause
   B. Can be gradual and continue until death
   C. Occur between the ages of 46 and 52
   D. Occurs usually 5-10 years after women

7. How much muscle mass loss is expected to occur with aging men experiencing hormonal decline?
   A. 5%-12%
   B. 12%-20%
   C. 12-20 pounds
   D. 5-12 pounds

8. What changes in bone mass are expected in aging men experiencing hormonal decline?
   A. 5%-12%
   B. 5-12 pounds
   C. 15 pounds
   D. 15%

9. What is the average change in height in aging men?
   A. Half-inch decrease
   B. 1-inch decrease
   C. 2-inch decrease
   D. No change

10. During what age period is this height change expected to occur?
    A. 35-40 years
    B. 40-70 years
    C. 70-80 years
    D. More than 85 years
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