




HORMONE REPLACEMENT THERAPY FOR MEN

Thomas C. Reed
R.Ph., F.A.C.A.

Reed's Compounding Pharmacy
2729 E. Speedway
318-4421
reedsrx.com

7/7/2010

1



Definition of Andropause

- ◆ A gradual decline in sex hormone levels over a period of years resulting in physiological and psychological changes

7/7/2010

2

Symptoms of Andropause

- ◆ Aging disorders
- ◆ Bone mass decrease (Osteoporosis)
- ◆ Anxiety/Fear of losing sexual potency
- ◆ Libido reduction
- ◆ Erectile dysfunction
- ◆ Depression
- ◆ Loss of self-confidence
- ◆ Prostate enlargement
- ◆ Abdominal obesity

7/7/2010

3

Goals of Andropause

- ◆ Normal sexual development
- ◆ Improve mood and libido
- ◆ Restore lipid balance
- ◆ Restore glucose metabolism
- ◆ Increase bone density
- ◆ Increase muscle mass

7/7/2010

4



Lab Values Males

- ◆ Total Testosterone 300-1100 ng/dl
- ◆ **Mean value desired 700ng/dl**
- ◆ Free Testosterone 5-20 ng/dl
- ◆ **Mean value desired 14-16 ng/dl**

7/7/2010

5



Recommended Blood Tests

- Total Testosterone
- Free Testosterone
- Estradiol
- Cholesterol
- PSA (Protein Specific Antigen)
- Zinc
- DHEA

7/7/2010

6

Testosterone

- ◆ Naturally produced by body 6-10mg
- ◆ Improves libido and erectile dysfunction
- ◆ Improves psychological well-being
- ◆ Increase strength and stature
- ◆ Preserves bones (Osteoporosis)
- ◆ Decrease cardiovascular risk
- ◆ Reduces cholesterol/triglycerides but does decrease HDL (good cholesterol)

7/7/2010

9

Testosterone

- ◆ Improves memory, cognition
- ◆ Improves concentration
- ◆ Reduces anxiety

- ◆ *Can activate an undetected prostate cancer*
- ◆ *May worsen sleep apnea, cause enlarged breasts, increase PSA and blood clots.*

7/7/2010

10

Testosterone

- ◆ Total Testosterone 300-1100 ng/dl
- ◆ Free Testosterone 5-20 ng/dl
- ◆ Highest serum levels at 8AM
- ◆ Lowest levels at 8PM
- ◆ Excessive amounts cause Testosterone to be converted to Estradiol by aromatase enzyme
- ◆ Young men have high levels
- ◆ Older men have low levels

7/7/2010

11

Pregnenolone

- ◆ Mother Hormone
- ◆ Main hormone produced by cholesterol
- ◆ Converts to progesterone and DHEA

7/7/2010

12

DHEA

- ◆ Blood levels decline with age
- ◆ Middle aged people feel marked improvements in well being
- ◆ Females (25mg) get better effects than Males (50mg)
- ◆ Converts to Androstenedione and Testosterone

7/7/2010

13

Androstenedione

- ◆ Mark McGuire-Baseball
- ◆ Converts directly to Testosterone and Estrone (Female Hormone)
- ◆ Over the counter product not regulated

7/7/2010

14

Estradiol

- ◆ Excessive exposure:
 - Primary cause of prostate enlargement
 - Primary cause of prostate cancer
- ◆ Produced by men but in much lower amounts than women
- ◆ When Testosterone decreases, the relative level of Estradiol in men increases

7/7/2010

15

Estrogen (Female Hormone)

- ◆ Age related increases in aromatase activity
- ◆ Alteration in liver functions
- ◆ Zinc deficiency
- ◆ Obesity
- ◆ Overuse of alcohol
- ◆ All related in some way

7/7/2010

16

Progesterone

- ◆ Kills prostate cancer cells
- ◆ Chief inhibitor of 5-alpha reductase:
 - Testosterone →→ (5-alpha reductase) →→ DHT
 - DHT - single most causative factor in prostate disease
- ◆ Decreases PSA (Prostate Specific Antigen) levels
- ◆ Stops progression of prostate lesions with daily use
- ◆ Use should be considered by men over age 40
- ◆ Numerous anecdotal reports of reduction of BPH and reversal of prostate cancer

7/7/2010

17

Progesterone (Continued)

- ◆ Prevents osteoporosis in men
- ◆ Might decrease male balding:
 - Due to corresponding rise in Testosterone
- ◆ Might relieve pain & swelling of rheumatoid arthritis
- ◆ No feminizing characteristics
- ◆ Raises androstenedione in prostate gland
 - A healthy well functioning prostate needs an abundance of androgens: Testosterone, Androstenedione, & DHEA

7/7/2010

18

Estrogen Dominance

- ◆ Enlarged prostate
- ◆ Urinary problems
- ◆ Low sex drive
- ◆ Impotence
- ◆ Depression
- ◆ Fatigue
- ◆ Rapid increase in weight

7/7/2010

19

Impotence

- ◆ The inability to achieve or maintain an erection suitable for intercourse
- ◆ 30 Million men in the U.S.
- ◆ Treatable 95% of the time
- ◆ May be a sign of a serious problem- diabetes, prescription medications, surgery, stress or, depression

7/7/2010

20

Treatment Options RX

- ◆ Injections-Testosterone, Triple Mix
- ◆ Transdermal Patches-Testosterone
- ◆ Urethral Inserts-Muse
- ◆ Creams/Gels- Androgel/Testim/Compounded
- ◆ Troches (lozenges)-Compounded
- ◆ Viagra-Phosphodiesterase Inhibitor

7/7/2010

21

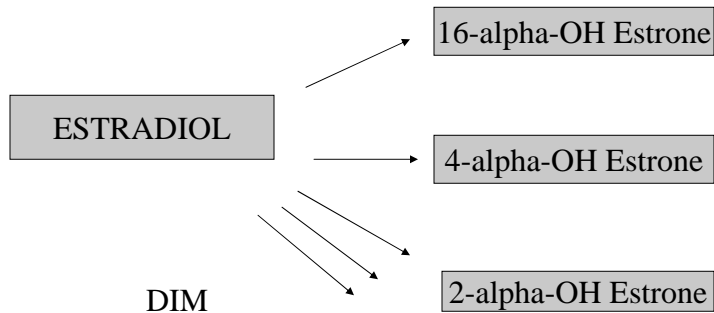
DIM

- ◆ Diindolylmethane
- ◆ Normalizes estrogen in men & women
- ◆ Supports enzymes that improve estrogen metabolism
 - Increases 2-dihydroxyestrogen (good)
 - Decreases 16-hydroxyestrogen (bad)
- ◆ Phytonutrient found in cruciferous vegetables
 - Broccoli, brussel sprouts, cabbage, cauliflower, & kale
- ◆ Reduces prostate and colon cancer risk

7/7/2010

22

Estrogen Metabolism



7/7/2010

23

Viagra (Sildenafil Citrate)

- ◆ Stimulation causes body's own amino acid l-Arginine to cause a chemical reaction that releases Nitric Oxide
- ◆ Nitric Oxide causes relaxation of cells in the penis allowing blood to flow into penis
- ◆ Phosphodiesterase reverses this process causing loss of erection

7/7/2010

24

Levitra (vardenafil HCl)

- ◆ Similar mechanism of action as Viagra
- ◆ Faster onset and longer duration of action than Viagra

7/7/2010

25

Cialis (tadalafil)

- ◆ Similar mechanism of action as Viagra
- ◆ Rapid onset of action, longest duration of action compared with Viagra, Levitra
- ◆ Nicknamed the “weekender”

7/7/2010

26

Non-Drug Recommendations For Treating Andropause

- ◆ Health Examinations
- ◆ Check hormone levels
- ◆ Reduce stress/worry
- ◆ Drink lots of water
- ◆ Eat meals rich in tomatoes
- ◆ Exercise

7/7/2010

27

OTC Treatment Options

- ◆ Ginseng-energy, alertness improved sexuality
- ◆ Ginkgo Biloba-increased blood flow, vasodilation of penis, antioxidant
- ◆ L-Arginine-Use with Viagra, increase blood flow, lower cholesterol
- ◆ Rye grass pollen-reduces prostatic cell growth, inflammation; reduces nocturia
- ◆ Saw Palmetto-blocks testosterone conversion to androstenedione that converts to estrogen, reduces prostate edema and inflammation

7/7/2010

28

OTC Treatment Options (cont'd)

- ◆ Yohimbine-increases blood flow to penis, increases heart rate and blood pressure
- ◆ Zinc-prevents aromatase from converting high doses of testosterone to estradiol (50-100mg per day), helps eyes, promotes healthy prostate function
- ◆ Vacuum Devices-elastic bands

7/7/2010

29

Suggested Readings

- ◆ THE ANDROPAUSE MYSTERY
- ◆ Robert S. Tan, M.D.
- ◆ THE TESTOSTERONE SYNDROME
- ◆ Eugene Shippen, M.D. & William Fryer
- ◆ THE HORMONE OF DESIRE
- ◆ Susan Rako, M.D.

7/7/2010

30