Disclosure

• Not all the drugs being discussed today are approved in the United States by the FDA for transgender medicine

Objectives

1. Fully understand requirements for initiating medication transition
2. Understand the medications including the doses, side effects, and interactions
3. Recall the lifelong consequences and/or benefits of medication transition
Transgender Definition: Identifying as or having undergone medical treatment to become a member of the opposite sex.
- Gender identity
- Gender expression
- Gender non-conforming
- Sexual orientation
- FT-male to female
- MTF-male to female

Transgender Terms
- Transgender specific terminology:
  - Transgender
  - Transsexual
  - Trans
  - Transgender Man/Woman
  - Crossdresser
  - Transition
  - Sex reassignment surgery (SRS)

Background
- 1.4 million adults claim to be transgender in the United States
- The first transgender clinic was founded in Berlin in 1910
- In 1917, the first documented male transition occurred
- Hormone treatment in kids began in 1948
- 1961 was the first time a transgender person ran for public office
- Nov. 20, 1999 was the first Transgender Day of Remembrance
Goal of Treatment

The goal of treatment for transgender people is to improve their quality of life by facilitating their transition to a physical state that more closely represents their sense of themselves.

Transition or Affirmation

- The process of changing from living and being perceived as the gender assigned at birth according to the anatomical sex (M or F) to living and being perceived as the individual sees and understands themselves.
- Goes beyond medical treatment with mental health, medical and surgical treatment and includes social affirmation, and legal changes.

Medical Transition Criteria by WPATH

- Persistent, well-documented gender dysphoria;
- Capacity to make a fully informed decision and to consent for treatment;
- Age of majority in a given country (if younger, follow the Standards of Care outlined in section VI);
- If significant medical or mental health concerns are present, they must be reasonably well controlled.
Puberty Blockers

- GnRH agonists
- Delay onset of irreversible changes of puberty
- Reversible
- 1 or 3 month injections
- Yearly implants
- Bone density
- Cost $120-$1000

FTM

- Goals: stop puberty; gain time/height
  - Virilize (4 cm clitoris)- quite effective
  - Suppress menses (norethindrone, tamoxifen)
- Methods: Androgen Rx: Testosterone injections, gels (BTB), oral (never); may spot from Testosterone
  - GnRH analogues (histrelin implant)

Testosterone

- Injectable Testosterone
  - Testosterone Enanthate or Cypionate 100-200 mg IM q 2 wks (20-22g x 1 ½” needles)
- Transdermal Testosterone:
  - Androderm TTS 2-8mg daily
  - Topical testosterone gels in packets and pumps, multiple formulations (Testim, Androgel) applied topically daily
  - Axiron 2% pump gel for axillary application 1 pump to each axilla daily
- Testosterone Pellet: Testopel-implant 6-10 pellets q 3 to 6 months
**Risk of Testosterone Treatment**

- Lower HDL and Elevated triglycerides
- Increased homocysteine levels
- Hepatotoxicity
- Polycythemia
- Unknown effects on breast, endometrial, and ovarian tissues
- Sleep apnea
- Infertility
- Chronic Pelvic Pain
- Mental Health Effects

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**Testosterone Drug Interactions**

- Increases the clearance of propranolol
- Increases the anticoagulant effect of warfarin
- Increases the hypoglycemic effects of sulfonylureas

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**MTF**

- Suppress serum Testosterone
  - via GnRHa or Estrogen or both
- Develop breasts (optimal with GnRHa-induced Testosterone suppression)
  - *Preserve scalp hair/suppress facial
- Spironolactone and/or Finasteride
- $150/wk for years
- Suppress erections
  - Limit masculine facial bone structure
  - *Voice, hgt, skeleton-> “gender attribution”
  - *Features that can be reduced even at Tanner 3-5, age 15-19
### MTF Medications

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oral Estrogens</strong></td>
<td>• Estradiol (estrace) 2-6mg PO or SL daily (can be divided into BID dosing)</td>
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<tr>
<td></td>
<td>• Premarin (conjugated estrogens) 1.25-10mg PO daily (can be divided into BID dosing)</td>
</tr>
<tr>
<td><strong>Transdermal Estrogens</strong></td>
<td>• Estradiol patch 0.1-0.4mg twice weekly</td>
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<tr>
<td></td>
<td>• Estradiol valerate 5-20mg IM q2 weeks</td>
</tr>
<tr>
<td><strong>Injectable Estrogens</strong></td>
<td>• Estradiol cypionate 2-10mg IM weekly</td>
</tr>
<tr>
<td><strong>Antiandrogens</strong></td>
<td>• Spironolactone (aldactone) 50-400mg PO daily (can be divided into BID dosing)</td>
</tr>
<tr>
<td></td>
<td>• Finasteride (Proscar) 2.5-5mg PO daily</td>
</tr>
</tbody>
</table>

### Risk of Estrogen Therapy

- Venous thrombosis/thromboembolism
- Increased risk of CVD
- Weight gain
- Decreased libido
- Elevated BP
- Infertility
- Hypertriglyceridemia
- Decreased glucose tolerance
- Gallbladder disease
- Breast Cancer

### Risk of Spironolactone Therapy

- Hyperkalemia
- Renal insufficiency
- Hypotension
**Estrogen Drug Interactions**

- Levels decreased by:
  - smoking cigarettes
  - Nelfinavir
  - Nevirapine
  - Ritonavir
- Levels increased by:
  - Vitamin C

**Follow-up/Management**

- Q1-3 month labs
- Mental health screen
- Support groups/family support
- Tanner staging/body changes
- Body image
- Cardiovascular screen

**References**


