Medical Care for Gender Expansive Youth

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Disclosures

- I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity.

- The use or indication of various commercial products such as hormone therapies used in this population is not currently approved by the FDA for labeling or advertising.
Objectives

- Describe an affirmative, culturally humble, and trauma informed clinical approach to the care of gender expansive youth

- Discuss clinical guidelines for gender affirming interventions, including puberty suppression, cross gender hormonal therapy
The U.S. Transgender Population

- 0.6% prevalence among individuals >18 years
- 1.4 million US adults
- 0.7% among youth 13-17
- 150,000 adolescents

• Flores, A.R, Williams Institute, 2016
Phases of Transition

- **Reversible**
  - Clothes, hair, shoes, toys, GnRH analogues

- **Partially reversible**
  - Masculizing and Feminizing Hormone Therapy

- **Irreversible**
  - Gender Reassignment Surgery (GRS)
Practice Guidelines

- World Professional Association for Transgender Health
  - Standards of Care, version 7, 2011

- Endocrine Society
The diagram shows a projectile launched with an initial velocity $v_0$ at an initial height $h$. The trajectory of the projectile is indicated by the dashed line, and the distance traveled horizontally is denoted as $x$. The word 'projectile' is written near the trajectory.
The Clinical Approach

- Affirmative
- Culturally humble
- Trauma-informed
- Strength-based
Review Gender Experience

- Review history of gender experience
- Review prior efforts to adopt asserted gender
- Discuss patient goals
- Assess for trauma/behavioral health history/coping
- Assess family and social support and resources
- Establish expectations for all stakeholders
  - Incorporate patient goals, with parental expectations, and management options
Gender Dysphoria in Early Adolescence
Fulfill criteria for Gender Dysphoria

Pubertal changes resulted in an increase gender dysphoria

At least Tanner stage 2

Coexisting comorbidities are addressed/stable so as not to interfere with treatment

Demonstrate knowledge and understanding of expected outcomes of treatment/informed consent
GnRH Analogues
GnRH Analogues

▶ GnRHa - Leuprolide Acetate Depot
  ▶ IM Monthly
    • <25kg 7.5mg Q4 weeks
    • 25-37kg 11.25mg Q4 weeks
    • >37.5kg 15mg Q4 weeks IM Q 3 monthly
    • 11.25mg Q3 monthly
    • 30mg Q3 monthly

▶ GnRHa – Triptorelin
  ▶ IM 22.5mg every *6 months

▶ GnRHa - Histrelin Implant
  • 12 months
Pubertal Suppression: Considerations

- Delay irreversible secondary sex characteristics
- May prevent medical interventions and surgeries
- Cognitive development and informed decision making
- Development of social support systems
- Addresses parental reluctance, especially with partially irreversible effects in minor
- Facilitates psychotherapy when distress is eased
Pubertal Suppression: Considerations

- Reduction in bone mineral density
  - Reversible with cross gender hormone initiation
- Height
  - Height increase in FTM
  - Height reduction in MTF
  - Generally desirable to both populations
- Delay in development of secondary sex characteristics relative to peers
- Fertility preservation
- Cost
Baseline and Follow-Up Protocol During Suppression of Puberty

- Every 3–6 months
  - Anthropometry: height, weight, sitting height, blood pressure, Tanner stages

- Every 6–12 months
  - Laboratory: LH, FSH, E2/T, 25OH vitamin D

- Every 1–2 years
  - Bone density using DXA
  - Bone age on X-ray of the left hand (if clinically indicated)
Outcomes of Puberty Suppression

- Behavioral and emotional problems and depressive symptoms decreased significantly
- General functioning improved significantly
- Feelings of anxiety and anger did not change between T0 and T1
- Gender dysphoria and body satisfaction did not change between T0 and T1
- No adolescent withdrew from puberty suppression, and all started cross-sex hormone treatment

de Vries AL, et al, 2010
Cross Gender Hormonal Therapy
Criteria for Cross Gender Hormonal Therapy

- Endocrine Society
  - Fulfill the criteria for GnRH treatment
  - ≥ 16 years
  - “there may be compelling reasons to initiate sex hormone treatment prior to the age of 16 years… limited published studies of treatments administered before age 13.5-14 years

- WPATH
  - No recommendation on timing of initiation
  - “Refusing timely medical interventions for adolescents might prolong GD and contribute to an appearance that might provoke abuse and stigmatization”
# Coming Out

<table>
<thead>
<tr>
<th>Patients</th>
<th>Mean, (Age Range)</th>
<th>Biological Female</th>
<th>Biological Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of Presentation</td>
<td>14.8 (4-20)</td>
<td>15.2 (6-20)</td>
<td>14.3 (4-20)</td>
</tr>
<tr>
<td>Tanner Stage</td>
<td>3.9 (1-5)</td>
<td>4.1 (1-5)</td>
<td>3.6 (1-5)</td>
</tr>
<tr>
<td>Total n, (%)</td>
<td>97 (100)</td>
<td>54 (55.7)</td>
<td>43 (44.3)</td>
</tr>
</tbody>
</table>

Spack N, GeMS Clinic, Boston Children’s Hospital. *Pediatrics*, 2012
Cross Gender Hormonal Therapy
Masculinizing Hormonal Therapy

- Puberty induction
  - (IM/SQ q 2 weeks q 6 months)
    - 25 mg/m²
    - 50 mg/m²
    - 75 mg/m²
    - 100 mg/m²
  - Continue GnRHa until serum testosterone > 100ng/ml

- Maintainance
  - Parenteral
    - Testosterone enanthate or cypionate IM/SQ weekly-q 2 weeks
  - Transdermal
    - Testosterone gel 1%, 1.62%
    - Testosterone patch
## Predicting Effects of Masculinizing Hormones

<table>
<thead>
<tr>
<th>Action</th>
<th>Onset</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male pattern facial/body hair</td>
<td>6–12 mo</td>
<td>4–5 yrs</td>
</tr>
<tr>
<td>Acne</td>
<td>1–6 mo</td>
<td>1–2 yrs</td>
</tr>
<tr>
<td>Voice deepening</td>
<td>1–3 mo</td>
<td>1–2 yrs</td>
</tr>
<tr>
<td>Clitoromegaly</td>
<td>3–6 mo</td>
<td>1–2 yrs</td>
</tr>
<tr>
<td>Vaginal atrophy</td>
<td>2–6 mo</td>
<td>1–2 yrs</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>2–6 mo</td>
<td></td>
</tr>
<tr>
<td>Emotional changes/ ↑ libido</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased muscle mass</td>
<td>6–12 mo</td>
<td>2–5 yrs</td>
</tr>
<tr>
<td>Fat distribution</td>
<td>1–6 mo</td>
<td>2–5 yrs</td>
</tr>
</tbody>
</table>
Risks of Masculinizing Hormones

- Acne
- Male pattern baldness
- Mood changes
- Polycythemia

- Weight increase
- Insulin resistance
- TG↑ HDL↓ LDL↑
Feminizing Hormonal Therapy

- Estrogens
  - Oral, sublingual, transdermal. IM
- Anti-androgen
  - Spironolactone
  - Finasteride
  - Bicalutamide
- +/- Progestins for breast tissue development
## Predicting Effects of Feminizing Hormones

<table>
<thead>
<tr>
<th>Action</th>
<th>Onset</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ libido, ↓ erections</td>
<td>1-3 mo</td>
<td>3-6 mo</td>
</tr>
<tr>
<td>↓ testicular volume</td>
<td>25% 1 yr</td>
<td>50% 2-3 yr</td>
</tr>
<tr>
<td>May ↓ sperm production</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Breast growth</td>
<td>3-6 mo</td>
<td>2-3 yr</td>
</tr>
<tr>
<td>Body fat redistribution</td>
<td>3-6 mo</td>
<td>2-3 yr</td>
</tr>
<tr>
<td>↓ muscle mass</td>
<td>1 yr</td>
<td>1-2 yr</td>
</tr>
<tr>
<td>Softens skin</td>
<td>3-6 mo</td>
<td>?</td>
</tr>
<tr>
<td>↓ terminal hair</td>
<td>6-12 mo</td>
<td>&gt; 3 yr</td>
</tr>
<tr>
<td>No change in voice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Risks of Feminizing Hormonal Therapy

- VTE
- Decreased Libido
- Erectile dysfunction
- Liver dysfunction
- TG ↑ HDL ↑ LDL ↓
- Increased BP

- Increased Weight
- Glucose intolerance
- Gall bladder disease
- Pituitary adenoma
- Breast cancer
- Anti-androgens
  - ↑ K  ↓ BP
Criteria for Surgical Care: Endocrine Society

- ≥ 18 or legal age of majority
- Persistent, well-documented gender dysphoria
- Successful continuous full-time living in the new gender role for 1 year
- At least 1 yr of consistent and compliant hormone treatment
- Demonstrable knowledge of all practical aspects of surgery
- If significant medical or mental health concerns are present, they must be well controlled
References


Center of Excellence for Transgender Health, Department of Family and Community Medicine, University of California San Francisco. Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People; 2nd edition. Deutsch MB, ed. June 2016. Available at www.transhealth.ucsf.edu/ guidelines


References

de Vries AL. Young Adult Psychological Outcome After Puberty Suppression and Gender Reassignment Pediatrics 2014;134:1–9


Resources on Transgender Health Care

- World Professional Association for Transgender Health: www.wpath.org
- Transgender Law Center: Health Care Issues: www.transgenderlawcenter.org/issues/health
- National Center for Transgender Equality: www.transequity.org
- UCSF Center of Excellence for Transgender Health https://prevention.ucsf.edu/transhealth