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REVIEW OF TREATMENT CONSIDERATIONS IN THE TRANSGENDER POPULATION

The pharmacologic treatment of transgender individuals requires a unique approach due to health care needs and risks that differ from that of the general population. Pharmacists are responsible for understanding the aspects of hormone therapy in this population as these patients undergo gender transitions. Other aspects of transgender health care include correct biologic gender to accurately complete dosing calculations and provide appropriate counseling. This issue of *CLIPs* briefly summarizes an article that briefly summarizes pharmacotherapy considerations in the transgender population and pharmacist responsibility to optimize care in these individuals. If you need further information, please contact the Center for Healthcare Innovation and Patient Outcomes Research (CHIPOR) at CHIPOR@samford.edu.

Bishop BM. Pharmacotherapy considerations in the management of transgender patients: a brief review. *Pharmacother*. 2015;35(12):1130-1139.

Introduction

- Estimates indicate that 1 in 100,000 individuals in the U.S. is a transgender woman and 1 in 400,000 individuals in the U.S. is a transgender man; however, these estimates may not be accurate.
- There are many barriers to care within this population including: stigmas and bias (e.g., overt discrimination), institutional stigma such as lack of legal representation for health insurance, and lack of health care provider knowledge regarding issues unique to lesbian, gay, bisexual, and transgender (LGBT) population.
- Specific health disparities in this population include lack of health insurance; high prevalence of HIV infection; higher rates of tobacco, alcohol, and other substance abuse; higher lifetime suicide attempt risk; and a higher incidence of societal stressors such as violence, discrimination, and childhood abuse.

Treatment of Gender Dysphoria

- Therapeutic options for individuals with gender dysphoria includes: psychotherapy; changing one's gender expression and role; hormone therapy; and surgery.
- Non-pharmacological treatment options include psychotherapy. This therapy is designed to help patients in assessing their gender identity and understanding the relationship between their mental health and body image.
- Patients will engage in discussing internal and external issues associated with gender dysphoria.
- Hormone therapy standards of care are provided by two guidelines: The World Professional Association for Transgender Health (WPATH) and The Endocrine Society. These guidelines address masculinizing and feminizing hormone therapy for transgender patients who are transitioning to the gender with which they identify.
- Surgery is irreversible and is typically a last option in the treatment of gender dysphoria. Patients must meet eligible criteria and undergo extensive planning and preparation prior to surgery.

Puberty-Suppressing Hormones

- This therapy is available to adolescents to allow these individuals more time to explore their gender dysphoria before deciding to pursue surgery. This also allows the prevention of the development of sex characteristics that would complicate sexual reassignment surgery.
- First-line treatment in patients with male genitalia is gonadotropin-releasing hormone (GnRH) analogs.
- GnRH analogs inhibit luteinizing hormone (LH) secretion, which causes inhibition of testosterone secretion.
- GnRH analogs include goserelin, histrelin, leuprolide, and triptorelin and are either IM or SubQ injections.

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Puberty-Suppressing Hormones (continued)

- GnRH analogs are safe, efficacious, reversible, but are very expensive and may not be covered by insurance.
- Alternatives are progestin (medroxyprogesterone) which has more adverse reactions and antiandrogens/antiestrogens (spironolactone, finasteride, letrozole, tamoxifen) which are less effective than GnRH analogs.
- Monitoring: growth impairment, sex steroid levels, renal and liver function tests, lipids, glucose, insulin, HgA1C, bone density.

Feminizing Hormone Therapy (Male-to-Female Transsexuals)

- Goal is to reduce the levels of endogenous hormones, reduce secondary biologic characteristics, and replace the endogenous hormone levels with those of the reassigned sex.
- Estrogen, antiandrogens, and GnRH analogs are treatment options.
- First-line therapy is estrogen (17β-estradiol or conjugated estrogens; 17β-estradiol preferred because serum estrogen levels can be measured for monitoring regardless of formulation; avoid use of synthetic estrogens)
- Transdermal products may be preferred in patients at risk for thrombotic events.
- Estrogen treatment may cause reversible elevations in prolactin levels with associated enlargement of the pituitary gland, weight gain, increased blood pressure, and increased insulin resistance. There is also an increased risk for breast or prostate cancer.
- Monitoring for estrogen therapy: Serum estradiol levels (goal < 200 pg/mL) and serum testosterone levels (goal > 55 ng/dL) every 3 months, routine cancer screening.
- Additional monitoring for spironolactone therapy: Blood pressure, potassium and sodium levels, renal function, ins and outs ratios, weight.

Masculinizing Hormone Therapy (Female-To-Male Transsexuals)

- Goal is to achieve serum testosterone levels in the normal male range (320-1000 ng/dL)
- Testosterone is the primary treatment (oral preparations not recommended due to serious hepatotoxicity.
- Treatment with testosterone may cause erythrocytosis, liver dysfunction, lipid changes, acne, and adverse physiologic changes. There is also an increased risk for breast and cervical cancer.
- Monitoring: Serum testosterone levels checked halfway between intramuscular injections or 1 week after transdermal treatment initiated, serum estradiol levels (goal < 50 pg/mL), complete blood count and liver function tests, lipid levels, fasting blood glucose and hemoglobin A1c in patients with diabetes, pap smear if cervical tissue present, and mammograms if mastectomy not performed.

Reproductive Health

- Hormone therapy limits fertility.
- Reproductive issues should be discussed with the patient before initiating hormone therapy.
- Hormone treatment may also cause sexual dysfunction.
- Transsexual men should be counseled that testosterone reduces fertility but is not a contraceptive.

Role of the Pharmacist

- Assist patients and their families with understanding the pharmacotherapy.
- Help prevent and treat adverse drug reactions.
- Provide therapy recommendations to the patient or physician when appropriate.
- Counsel patients on adverse effects and treatment expectations.
- Ensure correct documentation of gender identification, birth sex, and legal sex. These are important for addressing the patient, accurately dosing medications (e.g., calculating creatinine clearance), and safely administering potentially teratogenic medications.

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