

DOSING STANDARDS FOR PUBERTAL SUPPRESSION AND SEX STEROID HORMONES IN TRANSGENDER YOUTH

BY THE ENDOCRINE SOCIETY

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Pubertal suppression with GnRH agonists can start at the earliest stages of puberty (Tanner stage 2) with the addition of sex steroid hormones at the appropriate time after confirmation of the persistence of gender dysphoria/gender incongruence by a multi-specialty team with experience in making this diagnosis in transgender youth. It is important to note that prolonged therapy with GnRH agonists without the addition of sex steroid hormones is not advisable beyond 2-3 years given the potential impact of hypogonadism on the developing skeleton.¹ Sex hormone therapy should not be initiated prior to the onset of puberty.¹ Pre-pubertal children should be supported to explore their gender identity by social transition (when appropriate) and/or family/individual counseling in preparation for puberty suppression/gender affirming hormone therapy.¹

Transgender and gender non-conforming youth have increased rates of depressive disorders and higher rates of self-harm compared to their peers.² The psychological benefit to suppress puberty followed by gender affirming hormone therapy is supported by reports of increased quality of life and psychological well-being.^{3,4} Transgender youth treated with GnRH agonists in Holland demonstrated improved gender dysphoria, psychological function and well-being compared to their peers.

Gender affirming hormone therapy with testosterone or estrogen is then introduced at the appropriate time deemed by the clinical care team. The dose of hormonal therapy is adjusted gradually to bring the levels of estradiol and testosterone into the range of the affirmed gender.¹ For transgender girls and young women, oral and transdermal estradiol is recommended.¹ For transgender boys and young men, intramuscular or subcutaneous injection of testosterone is recommended.¹ Alternative forms of testosterone include testosterone gels or patches.¹

The approach for transgender youth is to mimic the changes associated with puberty over a period of 2-3 years while avoiding supraphysiologic dosing which may increase the risks of adverse events.

The Endocrine Society guidelines recommend that estradiol and testosterone levels should be measured every 6 months during this hormone transition period. In transgender boys, hemoglobin/hematocrit, lipids, 25-hydroxyvitamin D should be measured every 6 months.¹ In transgender girls, prolactin, 25-hydroxyvitamin D should be measured every 6 months.¹ It should be noted that transgender women on a spironolactone based regimen may not see elevations in prolactin and thus prolactin testing may not be required.⁹ Bone mineral density should be measured on an annual basis every 1-2 years in all transgender youth until age 25-30.^{1,5} It is important to emphasize compliance with the sex steroid hormone to preserve bone mass and also to have the desired effect of the medications. Specific hormone dosing regimens and a schedule for dose titration is included in the Endocrine Society guidelines.¹

GnRH agonists are expensive and may not be an option for transgender youth without insurance. Alternatives to GnRH could include depot medroxyprogesterone to suppress puberty sex steroids⁶. Although, this approach is not mentioned in the Endocrine Society guidelines, Meyer et al demonstrated in a small number of transyouth that depot progesterone was effective in the suppression of pubertal hormones with no reported side effects.⁶

Fertility preservation should be discussed prior to gender affirmation therapies.^{1,7} A discussion on safer sex practices in those who are sexually active should also occur given the high prevalence of HIV in the transgender population, particularly among transgender women.⁷ Adult care regimens and routine health screening should be reviewed as youth transition to adult providers.^{8,9}

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