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pubertal suppression/ hormone blocking in trans & gender diverse youth

A QUICK REFERENCE GUIDE

Trans and gender-diverse youth may wish to temporarily suppress puberty to help delay unwanted physical changes (secondary sex characteristics) that don't match their gender identity. Puberty blockers or hormone blockers can "pause" puberty and provide time for further exploration of gender identity and establishment of transition-related goals.

For youth who have gender dysphoria, suppressing puberty has been shown to improve mental wellbeing, reduce depression and anxiety, lessen self-harming thoughts and behaviours, improve social interactions with peers, and decrease or eliminate the need for future surgeries.

The most commonly used medications are known as gonadotropin-releasing hormone (GnRH) analogues. They work by suppressing the body's release of sex hormones, estrogen or testosterone. A young person needs to have started puberty (Tanner stage 2) and be able to provide informed consent prior to initiating medications. It is also important to complete a biopsychosocial assessment considering any co-existing psychological, medical or social concerns that could interfere with treatment.

For those assigned male

This will halt physical changes of male puberty, such as enlargement of the testicles and penis; development of muscles; development of facial hair; lowering of voice; broadening of shoulders; widening of the jaw and development of an Adam's apple; and will decrease sex drive, erections and nocturnal emissions.

For those assigned female

This will halt physical changes of female puberty, such as enlargement of chest (breast) tissue, widening of the hips and onset of menstruation. It can cause vaginal dryness and may reduce sex drive.

Pubertal suppression with GnRH analogues is considered a reversible therapy and their use is supported by the Endocrine Society and the World Professional Association for Transgender Health. They are generally considered safe. Once stopped, pubertal changes should resume in 3-6 months.

Possible short-term effects

There are some side effects that not everyone may experience, including hot flashes, headache, fatigue, muscle aches, changes in mood or weight gain. Risk for sterile abscess can be decreased by mixing the medication well. There has been rare incidence of pseudotumor cerebrii - advise patient to report any persistent headaches or visual changes.

Possible longer-term effects

Lower bone density: GnRH analogues will slow down the uptake of calcium by the bones. Measures to protect bone health should be encouraged: keeping active (weight-bearing exercise), ensuring good calcium and Vitamin D uptake (1,000 IU of Vitamin D and at least 650 mg of calcium daily). It is unknown if using this medication increases the chance of osteoporosis in older age.

Growth/height: If taken during a growth spurt, it will slow down the rate of growth. This may delay growth plate closure, leading to slightly taller adult height or it may cause overall lessening of adult height for those assigned male, particularly if they start estrogen later.

Future fertility: Use of these medications could temporarily (not permanently) interfere with fertility. This will depend on when during puberty they are started. If a youth knows they would like to have biological children in the future, they may want to consider fertility preservation before starting therapy. These medications are not contraception and do not prevent sexually transmitted infections (STIs). Precautions against pregnancy and getting a STI must still be taken. When GnRH analogues are stopped, puberty restarts within 3-6 months.

What should my patient expect?

Your client may experience a temporary increase in pubertal signs in the first 2-3 weeks after the first injection. Individuals assigned female at birth may experience vaginal bleeding, altered mood, and increased breast development. Individuals assigned male at birth may experience increased erections, altered mood, and increased aggressiveness. This brief increase in pubertal hormones before the axis is shut off does not occur in all patients, but it is a common initial effect of the drug. It will stop once the medication levels stabilize.

If signs of puberty continue beyond the second month of treatment, the prescribed dose may need to be adjusted, or interval shortened. Conversely, once the medication takes full effect, your client may notice some of the effects of hormone withdrawal, such as hot flashes and mood changes. Rapid changes in estrogen level with initiation of therapy may cause symptoms such as headaches and nausea. These effects usually subside after one to two months of therapy.

After the injection, some pain, redness, and/or irritation in the injection site is expected; however, if more severe symptoms occur or you have other concerns regarding how Lupron is affecting your patient, you may wish to consult with an endocrinologist or a gender specialist.

Dosage and how this medication is given

The medication is given by intramuscular injection, preferably into the vastus lateralis (mid-thigh, lateral aspect). The kit is supplied with a long needle that is appropriate for adults. You may exchange this needle for a 23-gauge, 1-inch needle or a 25-gauge, 1-inch needle, which may be better tolerated by youth. Some providers transfer solution to a 3cc syringe once reconstituted and then change needle for injection.

GnRH analogues are prescribed on a strict schedule every 12 weeks for 11.25mg Depot or monthly for 7.5mg Depot. Changing the schedule with 2-3 days should not be of concern, but irregular administration may accelerate puberty. Effectiveness of the medication is assessed clinically (I.e., cessation of menses, hot flashes, decrease in erections).
For youth at later pubertal stages (Tanner 4 or 5), consider menstrual suppression using progestin-only medications for those assigned female at birth or anti-androgens for those assigned male at birth. (see Sherbourne's Guidelines for Gender-Affirming Primary Care with Trans and Non-Binary Patients).

For more information about puberty suppression, hormone therapies, trans and non-binary youth, and 2SLGBTQ health, visit

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References

Achille, C., Taggart, T., Eaton, N. R., Osipoff, J., Tafuri, K., Lane, A., & Wilson, T. A. (2020). Longitudinal impact of gender-affirming endocrine intervention on the mental health and well-being of transgender youths: preliminary results. International Journal of Pediatric Endocrinology, 2020, 8. https://doi.org/10.1186/s13633-020-00078-2

Coleman, E., Radix, A., Bouman, W. et al (2022) Standards of Care for the Health of Transgender and Gender Diverse People, Version 8. International Journal of Transgender Health.

de Vries, A. L., Steensma, T. D., Doreleijers, T. A., & Cohen-Kettenis, P. T. (2011). Puberty suppression in adolescents with gender identity disorder: a prospective follow-up study. The Journal of Sexual Medicine, 8(8), 2276–2283. https://doi.org/10.1111/j.1743-6109.2010.01943.x

de Vries, A. L., McGuire, J. K., Steensma, T. D., Wagenaar, E. C., Doreleijers, T. A., & Cohen-Kettenis, P. T. (2014). Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics, 134(4), 696–704. https://doi.org/10.1542/peds.2013-2958

Lee, J. Y., Finlayson, C., Olson-Kennedy, J., Garofalo, R., Chan, Y. M., Glidden, D. V., & Rosenthal, S. M. (2020). Low bone mineral density in early pubertal transgender/gender diverse youth: findings from the trans youth care study. Journal of the Endocrine Society, 4(9). https://doi.org/10.1210/jendso/bvaa065

Mahfouda, S., Moore, J. K., Siafarikas, A., Zepf, F. D., & Lin, A. (2017). Puberty suppression in transgender children and adolescents. The Lancet Diabetes & Endocrinology, 5(10), 816–826. https://doi.org/10.1016/S2213-8587(17)30099-2

Navabi, B., Tang, K., Khatchadourian, K., & Lawson, M. L. (2021). Pubertal suppression, bone mass, and body composition in youth with gender dysphoria. Pediatrics, 148(4), e2020039339. https://doi.org/10.1542/peds.2020-039339

Turban, J. L., King, D., Carswell, J. M., & Keuroghlian, A. S. (2020). Pubertal suppression for transgender youth and risk of suicidal ideation. Pediatrics, 145(2). https://doi.org/10.1542/peds.2019-1725

van de Grift, T. C., van Gelder, Z. J., Mullender, M. G., Steensma, T. D., de Vries, A. L. C., & Bouman, M. B. (2020). Timing of puberty suppression and surgical options for transgender youth. Pediatrics, 146(5). https://doi.org/10.1542/peds.2019-3653

van der Loos, M. A., Hellinga, I., Vlot, M. C., Klink, D. T., Den Heijer, M., & Wiepjes, C. M (2021). Development of hip bone geometry in transgender adolescents resembles the experienced gender if GNRHA treatment is started in early, but not late, puberty. Journal of the Endocrine Society, 5 (Supplement_1). https://doi.org/10.1210/jendso/bvab048.1606

Vlot, M. C., Klink, D. T., den Heijer, M., Blankenstein, M. A., Rotteveel, J., & Heijboer, A. C. (2017). Effect of pubertal suppression and cross-sex hormone therapy on bone turnover markers and bone mineral apparent density (BMAD) in transgender adolescents. Bone, 95, 11–19. https://doi.org/10.1016/j.bone.2016.11.008

Wylie, H., Cohen-Kettenis, P., Gooren, S. et al (2017) Endocrine Treatment of Gender-Dysphoric/Gender – Incongruent Persons: An Endocrine Society Clinical Practice Guideline, The Journal of Clinical Endocrinology & Metabolism.