



A Clinical Guide to Precocious Puberty



**NATIONWIDE
CHILDREN'S**

When your child needs a hospital, everything matters.SM

Puberty is a normal component of a child’s growth and development into adulthood, yet premature puberty is a frequent cause of anxiety and stress. Although many benign normal variants are common, pathology can be seen, and appropriate treatments are available to address pubertal abnormalities.

Precocious Puberty

Precocious puberty is defined as signs of puberty in girls younger than 8 years of age, and in boys younger than 9 years of age. Some data suggest that the age definition for precocious puberty should be shifted one year earlier for non-Hispanic African-American and Mexican American girls.

Causes of Precocious Puberty

Idiopathic Central (GnRH-dependent)	
<ul style="list-style-type: none">• Unknown Cause• Central Nervous System insults• Brain tumor• Hydrocephalus• Central Nervous System granulomatous disease• Subarachnoid cyst• Hypothalamic hamartoma• Tuberous sclerosis• Genetic/familial	
Peripheral (GnRH independent)	
Girls <ul style="list-style-type: none">• Estrogen-secreting tumor• Ovarian cyst• McCune-Albright syndrome• Exogenous estrogen exposure• Congenital Adrenal Hyperplasia• Primary hypothyroidism	Boys <ul style="list-style-type: none">• Androgen-secreting tumor• Mutation in Luteinizing Hormone/Chorionic Gonadotropin receptor• Exogenous testosterone exposure• Congenital Adrenal Hyperplasia• Primary hypothyroidism

Diagnostic Evaluation

Classifying the cause as central (GnRH-dependent) or peripheral (GnRH-independent) is the most important step in a diagnostic evaluation. Most central precocious puberty in girls is idiopathic, whereas in boys there tends to be an underlying pathology. The following is an initial approach:

- Bone Age Film
- Gonadotropins (LH and FSH)
- Testosterone and/or estradiol levels
- Thyroid function screening (TSH and Free T4)

Therapeutic Management for Central and Peripheral Precocious Puberty

Most treatment for central and peripheral precocious puberty is related to the underlying cause. Treatment of central precocious puberty is with gonadotropin-releasing hormone (GnRH) agonists.

The two formulations available in the United States are:	
Lupron® (leuprolide acetate) <ul style="list-style-type: none">• Administered by intramuscular injection• One-month and three-month formulations available	Supprelin® (histrelin acetate) <ul style="list-style-type: none">• Implant inserted often by a surgeon• Effective for at least a year, possibly longer

Reasons for Referral

If your patient presents with any of the following conditions, consider referring to Nationwide Children's for evaluation from our endocrinology team:

- Signs of Adrenarche, such as pubic hair, axillary hair, acne, and/or body odor in girls <8 years of age or boys <9 years of age.
- Signs of Pubarche, such as breast development or vaginal spotting or bleeding in girls <8 years of age, or testicular enlargement or genital growth in boys <9 years of age.
- Any signs of puberty, especially if progressing rapidly and associated with increase in growth percentiles.



The Section of Endocrinology
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Referrals and Consultations

Online: NationwideChildrens.org

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Physician Direct Connect Line for 24-hour urgent physician consultations: (614) 355-0221 or (877) 355-0221.

