Mattel Children's Hospital UCLA

Pediatric growth disorders are often treated effectively with hormones

Childhood growth rates are based on a number of factors including heredity, gender and environmental influences such as nutrition. However, an estimated one-in-3,500 U.S. children has a growth disorder, which can be diagnosed at any time during childhood or adolescence. UCLA is a major center for the evaluation and treatment of pediatric growth disorders and is among the leaders in advancing treatment of these disorders, having made significant contributions to hormone-dose monitoring practices.

Short stature is the most commonly treated growth disorder and is typically defined as height below the third percentile with growth rates of less that five centimeters per year. Pediatric endocrinologists at UCLA offer comprehensive care for short stature and other growth conditions related to endocrine disorders and other systemic conditions.

These include:

Endocrine-related growth disorders

- Growth-hormone deficiency
- Hypothyroidism
- Cushing's disease

Responsive to parents' concerns

"Questions regarding a child's growth can arise at any stage of development," says Yung-Ping Chin, MD, an associate physician diplomate in UCLA's Division of Pediatric Endocrinology. UCLA specialists work with pediatricians and parents to provide consultation and examination, offering prompt appointment scheduling.

"Primary care physicians usually refer to us if they notice an unusual or worrisome growth pattern," Dr. Chin explains. "If parents have specific growth concerns or would like to have a conversation with us about growth, we are available for consultation as well."

Dr. Chin adds, "Pediatric growth disorders can be successfully treated, allowing the child to build a healthy self-image. UCLA specialists have extensive experience in evaluating and treating these patients."

"UCLA is at the forefront of new applications for growth-hormone therapy," she says. "We have the experience and resources to perform a thorough evaluation, and we are dedicated to developing a treatment plan that will meet the needs of each patient. Beginning this type of treatment can be daunting for families, so from beginning to end, we're here to guide them through the process and help put their minds at ease."

Genetic growth disorders

- Turner syndrome
- Noonan syndrome
- Prader-Willi syndrome
- Russell-Silver syndrome
- SHOX gene deficiency

Non-pathologic short stature

- Familial short stature
- Idiopathic short stature
- Small for gestational age
- Constitutional delay of growth

Consultation and evaluation

Comprehensive evaluation is required to determine the etiology of abnormal growth patterns, including consideration of nutritional, intestinal and bone disorders, as well as diseases of the kidney, heart and lung. Consultations can differentiate familial short stature and short stature induced by a treatable abnormality.

A typical work-up includes physical examination and a comprehensive review of growth patterns over time. Blood tests may be performed to rule out hormonal or genetic disorders. A bone-age test may also be ordered to assess growth in comparison to a child's chronological age. Physicians may order an MRI to evaluate the pituitary gland.

UCLA also provides growth-hormone-stimulation testing. This evaluation is performed as an outpatient procedure over the course of several hours under the guidance of a pediatric endocrinologist. After administration of medications designed to stimulate growth-hormone release, blood tests measure growth-hormone levels and assess for growth-hormone deficiency.

Growth-hormone treatment

Treatment of pediatric growth disorders has evolved significantly over the past two decades with the introduction of recombinant human growth hormone (rhGH). While growth disorders can be treated until the time growth-plate fusion is complete, earlier treatment typically increases the likelihood of a child attaining normal or near-normal adult height. Growth-hormone treatment involves a once-daily subcutaneous injection and has been proven safe and effective for indications including growth-hormone deficiency, idiopathic short stature, Turner syndrome, Noonan syndrome, small for gestational age, Prader-Willi syndrome, and chronic renal insufficiency.

Children with genetic disorders affecting multiple systems are cared for by a multi-disciplinary team of specialists at UCLA.

A center of excellence

UCLA physicians have served as investigators on growth-hormone studies, participated in growth-hormone surveillance trials and have authored multiple reviews on growth-hormone action and use in children. Moreover, UCLA physicians pioneered and established the use of growth-hormone-monitoring tools, specifically the approach of growth-hormone dosing based on IGF-1 response to growth-hormone therapy.

Research activities on pediatric growth disorders continue with an emphasis on understanding growth-hormone-related signaling.

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