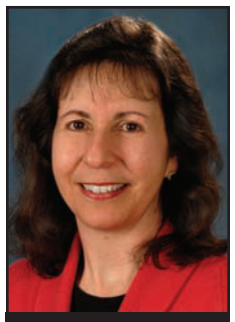

DEBRA R. COUNTS, M.D.

COMMENTARY

The Child With Short Stature

Growth is a terrific biomarker for general health, and a slowing of growth may be a sign of underlying disease. So which children deserve an evaluation?

Short stature is defined as growth below the third percentile. In addition to these children, a child who is crossing one percentile line on the growth chart also deserves evaluation. The sole exception is an otherwise healthy child developing well who may, in the second year of life, adjust to genetics (for example, a big baby born to short parents).

The key is to identify the short child by monitoring the growth pattern, evaluating him to find a specific diagnosis, and then targeting the clinical intervention.

Consistent measurement of a child's height at every health care encounter is the most important strategy to identify a child with short stature. Some children do not go for regular well-child visits once they have most of their immunizations completed and may show up for sick visits only. In many cases, only weight but not height is measured during these acute care visits. For example, in my pediatric endocrinology practice, it is not unusual to see children who are 12 years old without a height measurement for the previous 7 years because the family did not present to the primary care physician for well care.

The key is to identify the short child by monitoring the growth pattern, evaluating him to find a specific diagnosis, and then targeting the clinical intervention.

The benefits of these routine measurements go beyond identification of short stature. Any child with poor growth needs to be evaluated by a specialist who can go through an extensive differential diagnosis.

Helpful guidelines include the 2009 "Evidence-Based Clinical Practice Guideline on Linear Growth Measurement of Children" from clinicians at Blanks Children's Hospital in Des Moines, Iowa, and "Development of an Evidence-Based Clinical Practice Guideline on Linear Growth Measurement of Children"' (J. Pediatr. Nursing 2011;26:312-24).

Sometimes I hear families or primary care physicians say, "Let's just wait and see." It is advisable to see a child back in 6 months to monitor growth velocity, but watching poor linear growth year after year will not optimize the height outcome. The problem with later intervention is that the older child with short stature does not have enough "catch up" time. Therefore, additional evaluation is warranted if you diagnose short stature and you remain concerned after 6 months.

For a child who warrants this additional evaluation, a bone age x-ray is helpful (although not diagnostic of a specific condition). Other recommended studies include a complete blood count; chemistry panel; free thyroxine (free T4) with thyroid-stimulating hormone (TSH); insulinlike growth factor 1 (IGF-1), C-reactive protein, urinalysis, and a celiac panel (IgG and IgA class of anti–tissue transglutaminase [anti-tTG]; antiendomysial antibodies, IgA class [EMA-IgA]; and quantitative IgA). In addition, for girls, a karyotype can rule out Turner's syndrome.

Obtaining the correct test can sometimes be a problem. For example, IGF-1 is similar to many other test names on a laboratory test list. The odds of a lab technician performing the right test are low, because on their alphabetical test list, IGF BP 1 appears at the top (and this test is not useful at all!). This pitfall can be avoided by including the lab specific test code for IGF-1, which your local pediatric endocrinologist can help you find.

Other testing may be warranted, based

on history and physical findings. For example, if a child has a history of pneumonia and frequent sinusitis, I would order a sweat chloride test to rule out cystic fibrosis.

If there is no clear explanation, and the slowed growth does not respond to your intervention, refer the patient to a specialist.

The growth chart will help guide the type of referral.

If linear growth is poor and weight gain is appropriate (that is, their body mass index is normal), consider referral to a pediatric endocrinologist. If linear growth is poor, but weight gain is more strikingly affected (that is, BMI is low for age), consider referral instead to a pediatric gastroenterologist. If testing reveals electrolyte abnormalities, consider referral to pediatric nephrology. If the child has congenital anomalies or a developmental delay in addition to short stature, then referral to a geneticist becomes appropriate.

I hear families or primary care physicians say, 'Let's just wait and see.' The problem ... is that the older child with short stature does not have enough 'catch up' time.

Once a short stature diagnosis is established, a targeted approach geared to the optimization of growth can be planned. Human growth hormone therapy, for example, typically is ordered by a pediatric endocrinologist for a number of diagnoses.

Indications include growth hormone deficiency, Turner's syndrome, Noonan's syndrome, Prader-Willi syndrome, and children born small for gestational age who fail to catch up. A pediatric nephrologist also might prescribe this therapy for a child with renal failure who is not growing. ■

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