DECISIONS

Obesity in a young child

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At a routine visit, the mother of a healthy five-year-old boy expresses concern about his weight. On examination, his body mass index is 19. What are your next steps?

Is this child obese?

To determine whether a child is obese, body mass index (BMI) is calculated as body weight (kg) divided by length or height (m^2). This value is then plotted on the age- and sex-specific World Health Organization growth curve, endorsed for use in Canada.[1] In children 5–19 years of age, BMI greater than the 85th percentile is defined as overweight, greater than the 97th percentile as obese and greater than the 99.9th percentile as severely obese. This patient's BMI plots at greater than the 97th percentile for age and sex, which is diagnostic for obesity. Measuring height and weight at each health maintenance visit is recommended in both the Rourke Baby Record[2] and the Greig Health Record for children.[3] Measurement of waist circumference is not recommended for children.

Why is this child obese?

Obesity is a complex problem, influenced by genetic, environmental, family, social and societal factors.[4] Primary genetic or endocrine causes of obesity are rare, but may be considered if there are dysmorphic features, severe hyperphagia, developmental delay or clinical signs to suggest Cushing syndrome or hypothyroidism, such as a slower rate of growth.[4] Risk factors for obesity include family history of obesity, large pregnancy weight gain and gestational diabetes mellitus.[5] An assessment of BMI trajectory over time may provide insight into the timing and progression of obesity.[1] An assessment of dietary intake (especially items such as juice and sugar-sweetened beverages), physical activity and sedentary behaviours, such as screen time, is suggested.

What are the risks for this child with obesity?

Children with obesity are at risk for comorbidities such as hyperlipidemia, hypertension, insulin resistance, low quality of life and sleep-disordered breathing; there is also a risk that their obesity will persist into adulthood.[4] Experts suggest assessing for symptoms of obstructive sleep apnea, including snoring and pauses in breathing during sleep.[6] For children three years and older, blood pressure should be assessed according to published age, sex and height percentiles.[7] Some experts suggest checking for acanthosis nigricans, a sign of insulin resistance.[8] Beyond the medical implications of obesity, weight-based teasing is common, and inquiries should be made about this potential problem.[8]

Does this child require blood work?

There is poor evidence to guide laboratory tests for obesity-related comorbidity in children. The American Academy of Pediatrics has recommended a fasting lipid profile for children older than two years with obesity.[9] The Canadian Diabetes Association 2013 guideline recommends screening prepubertal children for type 2 diabetes every two years, if they have three or more of the following criteria: obesity, member of a high-risk ethnic group, family history of type 2 diabetes, exposure to hyperglycemia in utero and signs of insulin resistance.[10]

What treatment may be helpful for this child?

Randomized controlled trials for treatment of obesity in preschool-aged children have been limited. Systematic reviews have shown that moderate-intensity multidisciplinary programs, with parental involvement and follow-up, are effective in reducing BMI and blood pressure in school-aged children and adolescents.[9,11] Guidelines suggest that initial interventions for preschoolers with obesity to be recommended in the primary care setting should include limiting sugar-sweetened beverages, reducing screen time to less than two hours per day, increasing fruit and vegetable consumption, and increasing physical activity in the form of unstructured free play.[6] Referral to a dietitian to support behavioural change may be effective.[6] Referral to an

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obesity treatment centre may be considered for children with severe obesity, obesity-related comorbidities or obesity that is not responsive to treatment. Box 1 presents useful resources for both clinicians and parents.

Case revisited

Further questioning reveals that the child drinks four cups of fruit juice per day and watches three hours of television after school. His blood pressure is normal, and he has no risk factors for diabetes, other than obesity. You discuss the diagnosis of obesity with his mother, refer him to a dietitian and arrange a follow-up appointment to review progress. As a first step, the patient and his mother set a healthy lifestyle goal for the family to replace fruit drinks with water.

Box 1: Resources for families and physicians

- A Health Professional's Guide for Using the New WHO Growth Charts: www.dietitians.ca/Secondary-Pages/Public/WHO-Growth-Charts---Resources-for-Health-Professio.aspx
- Is My Child Growing Well? Questions and Answers for Parents: www.dietitians.ca/Nutrition-Resources-A-Z/Factsheets/Toddlers-and-School-Age/Child-growing-well.aspx
- NutriSTEP — Nutrition Screening Tool for Every Preschooler: www.nutristep.ca
- Canadian Paediatric Society position statements on child obesity: www.cps.ca/en/documents/position/physical-activity-guidelines and www.cps.ca/en/documents/position/psychosocial-child-adolescent-obesity
- Caring for Kids — information for parents from Canada's pediatricians: www.caringforkids.cps.ca
- Canadian Physical Activity Guidelines and Canadian Sedentary Behaviour Guidelines (by age group): www.csep.ca/guidelines
- Canadian Obesity Network — pediatrics page: www.obesitynetwork.ca/pediatrics
- Summary report of expert committee recommendations on prevention, assessment and treatment of child and adolescent overweight and obesity: www.pediatrics.org/cgi/content/full/120/Supplement_4/S164

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