Unravelling the risk factors for non-type 1 diabetes in children

A 14-year-old girl of South Asian descent presents to your office with a two-week history of vaginal itchiness and whitish discharge. She mentions that over the past month, she has been more fatigued, very thirsty, and urinating frequently, even at night. An examination of family history reveals that her maternal grandmother was diagnosed with type 2 diabetes mellitus and that her mother had gestational diabetes. Her height is 148 cm (third percentile) and her weight is 65 kg (90th percentile), with a calculated body mass index of 29.5 (97th percentile) and predominantly more body fat distributed in the abdominal area. She has vulvar erythema and discharge consistent with vaginal candidiasis. A urine dipstick reveals glucosuria but no ketonuria. A random blood sugar test is performed, revealing a level of 15.6 mmol/L. You contact your local paediatric diabetes education centre for referral and further management.

LEARNING POINTS

- Diabetes mellitus (DM) in children has evolved from the most common diagnosis of type 1 DM to a more complex differential diagnosis comprising type 2 DM (T2DM), monogenic forms of diabetes and secondary diabetes, including medication-induced DM, classified together as 'non-type 1 diabetes mellitus' (NT1DM).
- The Canadian Paediatric Surveillance Program, in partnership with the National Research System – The College of Family Physicians of Canada, is currently conducting surveillance of NT1DM in children up to 17.9 years of age to determine the incidence of NT1DM and T2DM in this age group.
- Since the study began in April 2006, 42 new cases of NT1DM have been identified through the surveillance program, with nine of them being confirmed cases of T2DM.
- In childhood, the rapid rise in T2DM prevalence parallels the epidemic of obesity. This poses a significant health threat worldwide, as evidenced by some studies that have demonstrated the rapid development of diabetes-related microvascular and macrovascular complications in young adulthood. Early identification of those at risk, as well as initiation of lifestyle interventions, are essential in the prevention of childhood T2DM.
- Over the past decade, isolation of six causative gene mutations has increased recognition of the genetic forms of childhood DM. This important advance can help guide the therapeutic approach.
- Medication-induced DM during childhood has been observed due to the use of glucocorticoids, chemotherapeutic agents (eg, L-asparaginase) and immunosuppressants (eg, cyclosporine and tacrolimus).
- Acquiring epidemiological and demographic data on Canadian children affected with NT1DM, specifically obesity-related T2DM, is essential and would provide a foundation upon which specific paediatric health promotion and disease prevention programs can be established.
- More information on NT1DM can be found in the following reference: Porter JR, Barrett TG. Acquired non-type 1 diabetes in childhood: Subtypes, diagnosis, and management. Arch Dis Child 2004;89:1138-44.

The Canadian Paediatric Surveillance Program (CPSP) is a project of the Canadian Paediatric Society, which undertakes the surveillance of rare diseases and conditions in children. For more information, visit our Web site at <www.cps.ca/cpsp> or <www.cps.ca/pcsp>.