UC DAVIS HEALTH | CHILDREN'S HOSPITAL

Pediatric Screening for Type 1 Diabetes (T1D) Risk in Asymptomatic Patients

General Concepts

- We know that type 1 diabetes develops gradually over time. If we catch the disease early in this process we can prevent progression to DKA and potentially intervene with a medication to delay the need for insulin therapy
- Diabetes Stages:
    - Stage 1: Eary immune response. The patients will have positive antibodies. If they have more than 2 positive antibodies, there is a 70% chance they will develop type 1 diabetes within 10 years.
    - Stage 2: The patient develops abnormal glucose levels. The first sign is typically postprandial hyperglycemia.
    - Stage 3: Symptoms develop such as polyuria/polydipsia/weight loss, and the patient requires insulin treatment.

Who should I test?

Patients with a family history of type 1 diabetes are at highest risk, however **the majority of new onset patients have no family history of Type 1.** Patients with an autoimmune condition or a strong family history of autoimmune conditions are at higher risk.

What tests can I order in an asymptomatic patient to screen for T1D risk?

The first step is ordering antibodies: Insulin Antibody, glutamic acid decarboxylase (GAD) Antibody, islet antigen 2 (IA-2) Antibody, Zinc transporter 8 (ZnT8) Antibody, Islet Cell Cytoplasmic Antibody. If you work within the UC Davis system, you can find an orderset under the Pediatric Ambulatory Procedures preference list or by searching for Pediatric Diabetes Antibody Panel.

Will these labs be covered by insurance?

Most insurance companies will cover this testing. If you or the family are worried about coverage, families can get free testing through the Autoimmunity Screening for Kids (ASK) program (https://www.askhealth.org/)

What if an antibody comes back positive?

If the patient is symptomatic you should contact the pediatric endocrinologist on call to determine next steps. If they are asymptomatic you can refer the family to pediatric endocrinology for us to evaluate in the outpatient setting. There we can discuss further testing and if the patient is a candidate for teplizumab treatment to delay the need for insulin therapy.

Ziegler, Anette G., et al. "Seroconversion to multiple islet autoantibodies and risk of progression to diabetes in children." *Jama* 309.23 (2013): 2473-2479.