Collaboration of Care in Type 2 Diabetes Current Recommendations of The American Academy of Pediatrics

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Disclosures

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Learning Objectives

1. To recognize the evolving T2DM epidemic
2. To contrast presentations of T1 and T2DM
3. To apply AAP Treatment Recommendations for T2DM
What is the Relationship Between these 2 photographs?

Output < Input (Supersize Me!)
New cases of diagnosed diabetes (continued)

Rate of new cases of type 1 and type 2 diabetes among youth aged <20 years, by race/ethnicity, 2002–2005

Source: SEARCH for Diabetes in Youth Study
NHW=non-Hispanic whites; NHB=non-Hispanic blacks; H=Hispanics; API=Asians/Pacific Islanders; AI=American Indians

The Unfortunate Truth
Increase in New cases of T2DM 10-19 years

Children's National Medical Center®
Case Presentation

• CC: 15 year old female routine camp physical and complaining of vaginal itching and irregular menstrual periods

• History: no specific complaints. Mom concerned about progressive weight gain over the past few years. Diet: 3 meals/day with multiple snacks consisting of Twinkies, chips, cola products. No physical education in school, plays Wii after school as unable to play safely outside.

• Family History: notable for cardiovascular disease and T2DM in grandparents

• PE: BMI>95%, acanthosis nigricans, striae on abdomen, vaginal white discharge
Case Presentation

- Laboratory: routine urinalysis: 3+ glucose/ 1+ ketones, vaginal culture: yeast, Blood: CBC, Thyroid function tests WNL. Random Blood glucose: 327, fasting blood glucose 187, hb A1c=8.6 (3 month estimated blood sugar average 200 mg/dl)
- Diagnosis: Diabetes: Type??
- Treatment Recommendations and Opportunities for Collaboration??
Diagnosis of Diabetes (review)

1. Random plasma glucose $\geq 200$ mg/dl with polyuria, polyphagia, polydipsia and symptoms of hyperglycemia
2. Fasting blood sugar $\geq 126$ mg/dl on 2 separate occasions
3. 2 hour plasma glucose $\geq 200$ mg/dl during an oral glucose tolerance test using 75 grams of anhydrous glucose dissolved in water.
4. Hb A1c $\geq 6.5\%$ - not always accurate in adolescents

Comparison of T1 vs. T2 Presentations (review)

<table>
<thead>
<tr>
<th>Type 1 Characteristics</th>
<th>Type 2 Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Sudden onset</td>
<td>- Insidious onset</td>
</tr>
<tr>
<td>- Thin phenotype</td>
<td>- Family history</td>
</tr>
<tr>
<td>- Insulin dependent</td>
<td>- Obese phenotype</td>
</tr>
<tr>
<td>- DKA presentation</td>
<td>- Acanthosis nigricans-insulin resistance</td>
</tr>
<tr>
<td>- Pancreatic antibodies</td>
<td>- May present with DKA</td>
</tr>
<tr>
<td>- Associated autoimmune diseases</td>
<td>- C-peptide +/- present</td>
</tr>
<tr>
<td></td>
<td>- Negative GAD-65 antibodies</td>
</tr>
</tbody>
</table>
AAP Key Action Statements

1. Initiation of Insulin therapy for youth with T2DM who present with DKA OR if distinction between T1DM and T2DM is unclear AND

   - Presence of random venous or plasma BG concentrations $\geq 250 \text{ mg/dl}$ OR
   - Hb A1c is $> 9\%$

POLICY LEVEL: STRONG RECOMMENDATION
AAP Key Action Statements

2. In all other instances, clinicians should initiate *lifestyle modification*:
   a. nutritional intervention
   b. physical activity
   c. Start Metformin (Glucophage®)
      - initial low dose: 250 mg-500 mg b.i.d.
      - maximum dose: 1000 mg b.i.d.
   - Advantages
      - less chance of weight gain
      - improved insulin sensitivity
   - Disadvantages
      - GI adverse effects
      - Rare potential for lactic acidosis

POLICY LEVEL: STRONG RECOMMENDATION
3. Clinicians should monitor Hb A1c concentrations every 3 months and intensify treatment if goals for Blood Glucose and Hb A1c are not met.
   - Goals should be individualized
     - Advantages:
       - prevention of micro-vascular complications
       - decrease risk of disease progression
     - Disadvantages:
       - increased potential for hypoglycemia
       - cost of frequent blood glucose monitoring

POLICY LEVEL: OPTION
AAP Key Action Statements

4. Clinicians advise patients to perform SBGM in youth:
   a. taking insulin or other medications with a risk for hypoglycemia OR
   b. initiating or changing T2DM treatment regimen OR
   c. who have not met treatment goals OR
   d. have inter-current illnesses

   -Advantages:
     - potential for improved control
     - lower hypoglycemia risk

   -Disadvantages:
     - cost and patient discomfort

POLICY LEVEL: OPTION
AAP Key Action Statements

5. Clinicians incorporate the American Academy of Nutrition and Dietetics’ *Pediatric Weight Management Evidence-Based Nutrition Practice Guidelines* in counseling T2DM youth at time of diagnosis and ongoing management.

- Advantages:
  - promote weight loss
  - improvement of insulin sensitivity

- Disadvantages
  - costs, inadequate reimbursement
  - time

POLICY LEVEL: OPTION
AAP Key Action Statements

6. Clinicians encourage T2DM youth to engage in moderate to vigorous exercise for at least 60 minutes daily and to limit non-academic screen time to less than 2 hours/day.

- **Advantages:**
  - weight loss
  - glycemic control

- **Disadvantages:**
  - cost, food, time
  - inadequate reimbursement

POLICY LEVEL: OPTION
We Had a Dream

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