Impaired Glucose Tolerance in Children

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Objectives

- Incidence
- Diagnosis
- Treatment

http://www.pre-diabetes.com/
“Pre-diabetes” is common

- 25 percent of very obese children and 21 percent of very obese adolescents have pre-diabetes.
  - Sinha et al, NEJM 2002

- In 1999 to 2000, 7.0 percent of U.S. adolescents ages 12 to 19 years had IFG.
  - National Diabetes Information Clearinghouse, 2007

Perform an oral glucose tolerance test in a child with risk factors

- High BMI
- Acanthosis nigricans
- Family history
- Mild symptoms

An oral glucose tolerance test is definitive and feasible

- Instruct parent to ensure child is fasting for 8h
- Draw serum FASTING glucose
  - Venipuncture NOT blood glucose meter
- Have child drink glucola 1.75g/kg up to MAX 75g
- Draw serum glucose 2 hrs after drink

Pre-diabetes can be IFG and/or IGT

Glucose

- Fasting Plasma Glucose
  - Diabetes Mellitus
  - Impaired Fasting Glucose
  - Normal
- 1.75 grams/kg Glucola up to max 75g
- 2-Hour PG on OGTT
  - Diabetes Mellitus
  - Impaired Glucose Tolerance
  - Normal

- ≥126 mg/dL
- > 100 mg/dL
- > 140 mg/dL
- ≥ 200 mg/dL

Adapted from The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care.* 1997;20:1183-1197.

Lifestyle changes and metformin decrease progression to T2DM in adults

- *Diabetes Prevention Program Research Group, NEJM 2002*

- **Lifestyle**
  - 150min/wk
  - 7% wt loss
  - ↓58%

- **Metformin** = 31% reduction

Lifestyle changes are more effective than metformin
Metformin is well tolerated in children

- Does not cause hypoglycemia like the other oral medications (in correct doses)

- *Start low and go slow to minimize GI discomfort*

- Discontinue while receiving iodinated contrast

Educate the family about symptoms of overt Type 2 diabetes

- Excessive thirst and urination, fatigue

- Weight loss without lifestyle changes

- Home blood sugar monitoring provides vital information

http://www.medpropharmacy.com/Health_Screenings.html
Conclusion: Treatment of prediabetes can be started locally

- Diagnose using an oral glucose tolerance test
- Treat with lifestyle changes and metformin
- Educate the family about signs and symptoms of diabetes

Thank you for fighting the good fight on the front lines