

Diabetes Mellitus

David Dayya, D.O., M.P.H.
Department of Family Medicine
St. Barnabas Hospital
Bronx, N.Y.

Overview

- Epidemiology
- Etiology Type 1 vs. Type 2
- Diagnosis
- Complications
- Treatment and management guidelines
- New developments

Epidemiology

- 90% diabetics treated by PCP (F.P., Ped., I.M.)
- 17,000,000 Americans with D.M., 20,000,000 with I.G.T. and same with history of D.M.
- 10,000,000 diagnosed
- 5,000,000 treated
- 2,500,000 controlled
- Death rates of D.M. climbing and exceeding that of Heart disease and cancer
- GDM rates are growing
- Rising trends correlate with rising Obesity
- 1 in 7 healthcare dollars (25% of Medicare budget) is spent on D.M. = \$100,000,000/Year

Type I

- Juvenile Onset
- < 10 % all diabetics
- Most not obese
- Beta cell destruction
- Insulin deficiency
- Autoimmune
- Weaker genetic susceptibility
- Associated with DKA
- Starvation state
- Polyglandular endocrinopathy

Type 2

- Mature Onset
- > 90 % all diabetics
- > 90 % Obese
- Insulin resistance
- Hyperinsulinemia
- Receptor dysfunction
- Stronger genetic susceptibility
- Associated with NHH
- Not a true starvation state
- Syndrome X (Metabolic syndrome)

ADA Diagnostic Guidelines

- Random Blood Sugar > 200 and symptomatic i.e. Polydipsia, Polyphagia, Polyuria
- Two FBS > 126
- 3 hour glucose tolerance test
- Note: If neither of these three criteria are met yet patients blood sugar is still abnormal than patient is said to have IGT impaired glucose tolerance, a prediabetic condition.
- Note: Hypoglycemia and I.G.T. are pre-diabetic conditions.

3 Hour GTT

- 75 gram oral glucose load
- Collect post challenge 1,2,3 hour serum glucose
- If two hour greater than 200 and one of the others than test is positive

Complications of D.M.

- ** #1 cause of blindness, renal failure and amputations in the U.S.**
- Diabetic Retinopathy (Neovascularisation and spontaneous hemorrhages)
- Diabetic nephropathy (Nephrotic syndrome, chronic renal failure, Diabetic focal glomerulosclerosis)
- Diabetic neuropathy
- Peripheral vascular disease
- Coronary artery disease
- Cerebrovascular disease
- Diabetic gastroparesis

Treatment and Management Guidelines

- Education (Classes, Visiting Nurse)
- ADA diet 1500, 1800, 2000, 2200 (essentially lowered carbohydrates in favor of increased protein)
- Role of Antioxidants, Chromium, Zinc and B-vitamins
- Exercise (Combination weight training in conjunction with aerobic exercise favoring use of larger muscle groups)
- Weight reduction (type 2)
- Control for other risk factors
- Pharmacotherapy

Pharmacotherapy

- Biguanides, metformin hydrochloride
- Thiazolidinediones, rosiglitazone, pioglitazone
- Alpha glucosidase inhibitors, acarbose
- First generation oral sulfonylureas, glipizide, glyburide, chlorpropamide
- Second generation oral sulfonylureas, glimepiride
- Insulin

Biguanides

- Inhibit gluconeogenesis and glycogenolysis in the liver and muscle