

## **Diabetes Mellitus**

### *General Management Principals*

- Evaluation for diabetic complications
  - Eye examinations
    - Type I diabetes: within 5 years of diagnosis, once patient is 10 years of age, or older, and annually, thereafter
    - Type II diabetes: at the time of diagnosis, and annually, thereafter
    - Pregnancy: prior to conception and during first trimester. Close monitoring during pregnancy and for one year after delivery.
  - Foot examinations
    - Visual inspection of feet at each clinical visit
    - Comprehensive foot examination each year, to include
      - ✓ Condition of nails
      - ✓ Condition of skin, including between toes
      - ✓ Peripheral pulses and adequacy of perfusion. Ankle-brachial index recommended.
      - ✓ Assessment of vibratory sense, light touch (use Semmes-Weinstein 5.07 monofilament), ankle reflexes, and proprioception to screen for early neuropathy
      - ✓ Advice of routine foot care given and documented
  - Screening for microalbuminuria
    - Type I diabetes: within 5 years of diagnosis, and annually, thereafter.
    - Type II diabetes: at the time of diagnosis
    - Note: 20 to 300 mg/day is microalbuminuria and usually indicates diabetic kidney disease. Great than 300 mg/day is over proteinuria.
  - Screening for coronary heart disease
    - Especially in diabetics with a family history of ASHD/CAD
    - Diabetics are at increased risk for silent MI or atypical symptoms for ischemic heart disease or MI
    - Note: routine stress testing of “high risk” diabetics is no longer recommended. Stress testing should be contemplated in sedentary diabetics over age 35, who are contemplating starting an exercise program, and in members with proven carotid or peripheral vascular disease.
- Reducing risk of microvascular disease
  - Smoking cessation
  - Daily aspirin if no bleeding risk
  - Blood pressure control of 130/80, or lower.
    - If more than 1 g/day proteinuria, blood pressure of 120/80, or lower.
    - ACE inhibitors and ARBs particularly useful in controlling BP in diabetics because of renoprotective effect.
  - Dyslipidemia
    - LDL cholesterol < 100 mg/dL
    - HDL cholesterol > 40 mg/dL

- TG < 150 mg/dL
- Metformin: probable drug of first choice for Type II diabetics and may reduce risk of microvascular disease in all diabetics, but more research required as of this date.
- Multifactorial risk factor reduction
  - Reduced dietary fat
  - Light to moderate exercise routine
  - Smoking cessation
  - Vitamin supplementation
- Glycemic control
  - HbA<sub>1c</sub> should be monitored twice a year in controlled diabetics. More frequently in uncontrolled diabetics.

Target: Age-specific ADA A1C goals are:

- ❖ <6 years of age: 7.5 to 8.5 percent
  - ❖ 6 to 12 years of age: ≤ 8 percent
  - ❖ 13 to 19 years of age: ≤ 7.5 percent
  - ❖ Over 19 years of age: < 7.0 percent
- General health maintenance issues in diabetics
    - Increased risk of cancer
    - Increased risk of periodontal disease
    - Pneumovax and annual influenza vaccinations important

#### *Important Clinical Interventions*

- Treat Contributing factors
  - Weight control to within 10 percent of ideal body weight
  - Stop smoking
  - Regular exercise
  - Dietary restriction of foods with a high glycemic index recommended by many dieticians
- Pharmacotherapy
  - Type I diabetes: insulin is almost always required to treat a type I diabetic. Insulin regimen should target tight control of blood glucose and normal HbA<sub>1c</sub>.
  - Type II diabetes:
    - Drug of first choice: Metformin, if tolerated
    - Addition of sulfonylurea drug, if needed, for tighter control of blood sugar
    - Addition of insulin for tighter control of blood sugar
    - Other drugs with minimal place, although sometimes useful
      - ✓ Thiazolidinediones (*i.e.* pioglitazone)
      - ✓ Meglitinides (*i.e.* repaglinide)
      - ✓ DDP-IV inhibitors (*i.e.* sitagliptin)
      - ✓ Glucagon-like peptide 1 agonists (*i.e.* exenatide)
      - ✓ Alpha-glucosidase inhibitors (*i.e.* acarbose)

*Patient Education Issues*

- Dietary compliance
- Weight control
- Smoking cessation
- Routine diabetic health maintenance – foot care, eye care, *etc.*
- Tight blood sugar control and optimal HbA<sub>1c</sub>. Self blood sugar measurement, monitoring, and logging.
- Control of lipids and cardiovascular risks
- Monitoring for diabetic complications, as above (*i.e.* routine eye and foot exams, *etc.*)
- Pharmacokinetics of short and long acting insulins
- Signs, symptoms, and treatment of hypoglycemia (consider alert bracelet)
- Ketoacidosis
- Adolescents: increased risk-taking behavior, depression, eating disorders
- Family education on diabetes and its treatment

ADA Guideline at

[http://care.diabetesjournals.org/content/33/Supplement\\_1/S4.full.pdf+html](http://care.diabetesjournals.org/content/33/Supplement_1/S4.full.pdf+html)

2010 ADA Guideline Supplement at

[http://care.diabetesjournals.org/content/33/Supplement\\_1](http://care.diabetesjournals.org/content/33/Supplement_1)

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