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FIGHTING DIABETES

Plated Prescriptions

INTRODUCTION

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Since 1980, the number of people with diabetes has risen from 108 million to 422 million in 2014. It is the 7th leading cause of death claiming the lives of about 1.6 million in 2016.

So now what is diabetes? What causes it? Is it just all about sugar? Or is there more to the disease?

Can we prevent or even reverse diabetes? How can we fight it? Keep on reading to find out...

WHAT IS DIABETES?

Diabetes mellitus refers to a group of metabolic disorders that present with high blood sugar levels. It causes metabolic problems that affects many organ systems in the body. *cont'd on the next page*

WHAT'S INSIDE THIS ISSUE:

WHAT IS DIABETES?

Continued

HBA1C OR FBS ARE THE MOST RELIABLE AND CONVENIENT TESTS FOR IDENTIFYING DIABETES.

In the US, diabetes is the leading cause of end-stage kidney disease, nontraumatic lower extremity amputations, and adult blindness. It also increases the risk for cardiovascular disease.

CLASSIFICATION

Diabetes is classified as Type 1 & Type 2. **Type 1 DM** is a result of complete or almost complete insulin insufficiency. **Type 2 DM** is characterized by variable degrees of insulin resistance, impaired insulin secretion, and increased glucose production.

There is also such a thing as **Gestational DM**. It is glucose intolerance that develops during pregnancy. Most of these women return to normal blood sugar levels after giving birth. However, they carry a **35-60% risk** of developing diabetes in the next **10 to 20 years**.

DIAGNOSING DIABETES

Glucose tolerance is classified into 1) normal, 2) impaired, and 3) diabetes mellitus. Glucose tolerance can be assessed by checking for Fasting Blood Sugar (FBS), response to glucose challenge (OGTT), or the hemoglobin A1c (HBA1c). A diagnostic criteria was developed for diagnosing diabetes which is seen on the table below. Diabetes is defined as the level of blood sugar levels at which diabetes-related complications occur. It is not merely a deviation from the mean. Example, the prevalence of retinal damage (inside the eye) in Native Americans starts at an FBS of >116 mg/dL.

Patients with impaired glucose tolerance have a greater risk of progressing to type 2 DM and have increased risk of cardiovascular disease.

The diagnosis of DM is withdrawn once glucose tolerance reverts to normal.

TABLE 417-2 CRITERIA FOR THE DIAGNOSIS OF DIABETES MELLITUS

- Symptoms of diabetes plus random blood glucose concentration ≥11.1 mmol/L (200 mg/dL)[a] *or*
- Fasting plasma glucose ≥7.0 mmol/L (126 mg/dL)[b] *or*
- Hemoglobin A_{1c} ≥ 6.5%[c] *or*
- 2-h plasma glucose ≥11.1 mmol/L (200 mg/dL) during an oral glucose tolerance test[d]

[a]Random is defined as without regard to time since the last meal. [b]Fasting is defined as no caloric intake for at least 8 h. [c]Hemoglobin A_{1c} test should be performed in a laboratory using a method approved by the National Glycohemoglobin Standardization Program and correlated to the reference assay of the Diabetes Control and Complications Trial. Point-of-care hemoglobin A_{1c} should not be used for diagnostic purposes. [d]The test should be performed using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water, not recommended for routine clinical use.

Note: In the absence of unequivocal hyperglycemia and acute metabolic decompensation, these criteria should be confirmed by repeat testing on a different day.

Source: Adapted from American Diabetes Association: Diabetes Care 37(Suppl 1):S14, 2014.

CHOOSE UNREFINED, HIGH-FIBER CARBOHYDRATE SOURCES TO HELP CONTROL BLOOD SUGAR LEVELS.

RISK FACTORS

for Diabetes Mellitus

- Family history
- Obesity
- Physical inactivity
- Previously identified with impaired glucose tolerance
- History of Gestational DM or delivery of baby >4 kg (9 lbs)
- HPN (BP >/= 140/90 mmHg)
- HDL (<35 mg/dL) and/or triglyceride level >250 mg/dL
- Polycystic ovarian syndrome
- Acanthosis nigricans
- History of cardiovascular disease

LIFESTYLE MGT.

CARBOHYDRATES

Avoid highly refined carbohydrates such as white rice, white bread, sugary soft drinks, and desserts. They cause rapid increase in blood sugar levels and can increase your triglycerides as well.

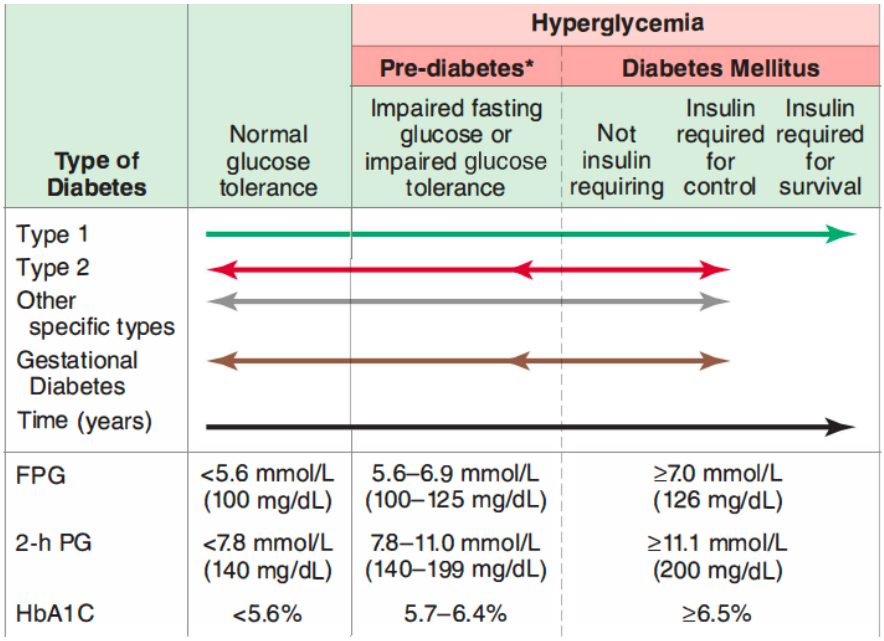
Choose your carbohydrate sources from vegetables, whole grains, and fruits. These usually are high in insoluble and soluble fiber.

Soluble fiber is particularly found in oats (choose whole rolled or steel cut), beans, apples, and other fruits. Soluble fiber slows down passage of food down the GI tract and slows absorption of the sugar through the small intestine because of the gel it forms with water. Thus, it is helpful in regulating blood sugar levels.

In fact, a certain study was published by PLOS Medicine last March 6, 2020. British researchers collated studies with about 10,000 participants with prediabetes, gestational DM, type 1, and type 2 DM. The study found that the participants who ate a high-fiber diet (35 g/day) had lower levels of blood sugar, cholesterol, inflammation, and had lower body weight, compared to those who ate a low-fiber diet (19 g/day).

DECREASE SATURATED FAT & AVOID TRANS FAT INTAKE

A high saturated fat diet can increase fat insertion into muscle cells. Intramyocellular lipid (fat inside muscle cells) has been found to disrupt insulin signaling and



OBESITY IS BELIEVED TO ACCOUNT FOR 80-85% OF THE RISK OF DEVELOPING TYPE 2 DIABETES

LIFESTYLE MANAGEMENT

continued

prevents the insulin receptor from receiving insulin. This prevents glucose uptake into the cell causing insulin resistance over time and increased blood sugar levels as the sugar stays in the bloodstream instead of entering into the cell for utilization.

Excess fat also is pro-inflammatory - meaning it promotes the production of inflammatory mediators. Inflammation can damage the pancreatic beta cells that produce insulin.

LOSE WEIGHT

The condition most strongly influenced by body weight is type 2 diabetes. Of 18 weight-related diseases studied in a meta analysis, DIABETES was at the top of the risk list. Men with BMIs of 30 or higher had a 7-fold higher risk of developing type 2 diabetes. Women with BMIs of 30 or higher had a 12-fold higher risk of developing type 2 diabetes. This is in comparison with men and women with normal BMI. Why? Because fat cells, especially those stored around the waist, secrete substances that increase inflammation. Aside from what was discussed earlier regarding inflammation, inflammation can also make the body less responsive to insulin leading to higher blood sugar levels.

EXERCISE

Moderate-intensity aerobic exercise of at least 150 minutes per week can lower the risk of diabetes. Cohort studies found a 31% reduction of risk without accounting for BMI; 17% reduced risk after accounting for BMI differences. Physical activity is also associated with lower HBA1c levels (blood sugar levels).

Warning: blood sugar levels may drop during exercise. Patients with diabetes may consume a small carbohydrate snack beforehand to prevent low sugar levels (hypoglycemia). Or you may keep one available during exercise. Diabetic patients with nerve damage or vision loss should take precautionary measures as well during exercise to avoid injury.