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THE MANY FACES OF DIABETES

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WEEKLY TRIVIA

"If you don't manage your diabetes, your diabetes will manage you."

— Sherri Brady

DIABETES MELLITUS

WHAT IS DIABETES?

Diabetes Mellitus is a very complex disorder of the metabolism, but most tend to believe it only concerns the amount of sugar in the blood stream. This is a grave misconception. Diabetes Mellitus is a chronic disease with no cure. Diabetes, although not contagious, is affecting people at epidemic proportions. It is not selective in whom it attacks, but there is a higher prevalence in Hispanics and Native Americans. As of 2011, 25.8 million children and adults (8.3% of the US population) were affected by diabetes. In 2010, 1.9 million new cases were diagnosed; therefore, every 17 seconds someone in the US is diagnosed with diabetes. In 2000, 6.8% of Louisiana residents had diabetes. In 2010, that percentage had grown to 10.7% of the population. More than one type of diabetes exists, but all of them can be devastating to the body. In this issue, we will discuss the different types of diabetes. Treatment options and risks will be discussed in later issues.

TYPE II DIABETES

T2DM

Of people who have diabetes, 90% have Type II Diabetes (T2DM). In T2DM insulin secretion is normal, depressed, or even initially elevated. Insulin is a hormone that is produced by the pancreas and is used in glucose uptake by the cells. It regulates carbohydrate metabolism and has other functions in the body. The primary defect in T2DM is usually insulin resistance. If insulin resistance is the issue, the pancreas is producing insulin, but the cellular receptors are dysfunctional and no longer recognize and accept insulin. This causes an increased production of insulin (hyperinsulinemia) in an effort to bind to the glucose in the blood stream. Eventually the beta-cells will be exhausted and be unable to produce an adequate amount of insulin (relative insulin deficiency). In relative insulin deficiency, the pancreas simply cannot keep up with the amount of carbohydrates that may be eaten. One may also develop increased hepatic

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…TYPE II DIABETES

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glucose production. In some cases, more than one of the above may be present requiring a combination of medicines for successful treatment. The onset of T2DM can be gradual. Diagnosis is based on the patient having symptoms with a random bg >200mg/dl or a fbg (fasting blood glucose) >/=126mg/dg. An A1c is often checked, but at this time the guidelines will not allow it to be used diagnostically. Insulin and C-peptide levels can be monitored for a differential diagnosis and to determine appropriate treatment. C-peptide is released with endogenous insulin, therefore, if the C-peptide level is low there is a decrease in insulin production. People at highest risk for developing T2DM are >45 years old, overweight, habitually inactive, have a history of hypertension, vascular disease, and elevated cholesterol levels, and family history. However, those who are slim, physically fit with no family history and no other medical history are frequently diagnosed with T2DM as well. There is no limit placed on the lifespan of a patient with T2DM if it is well controlled.

INSULIN RESISTANCE

AKA BORDERLINE DIABETES
AKA PRE-DIABETES

Insulin Resistance (sometimes called "Borderline Diabetes" or "Pre-Diabetes") is the precursor to T2DM and, statistically we know that if lifestyle changes are not made immediately the disease will progress to T2DM. Guidelines have been set for an actual diagnosis of T2DM so your physician can only diagnosis you with insulin/borderline diabetes/ pre-diabetes if you have above normal insulin or blood glucose levels but do not yet meet the requirements of T2DM. A normal fasting blood glucose should be 70-100mg/dl. Any fbg 101-125mg/dl is considered pre-diabetes. The insulin level can be checked and if above normal, then clearly the pancreas is having to over-produce to compensate for the increased amount of glucose present in the blood. Frequently, the fasting readings will be within normal limits if the insulin levels are elevated as the insulin binds to the glucose, masking an elevation. Insulin is a fat storing hormone, therefore, the person with insulin resistance usually has weight gain at the waist. The pathophysiology of insulin resistance/borderline diabetes/pre-diabetes is explained under T2DM.

be a
PATIENT
ADVOCATE
&
know your
PATIENT'S
DISEASE PROCESS

For more information visit
www.diabetes.org
and the
American Diabetes Association

TYPE I DIABETES
ONCE KNOWN AS JUVENILE DIABETES

A much smaller, although growing, population of diabetics have Type I Diabetes (T1DM). T1DM is an auto-immune disease resulting in the death of the insulin producing beta-cells. In T1DM there is an absolute insulin deficit. The leading theory is that T1DM is caused by a virus, though not known to be contagious. Most patients with T1DM will have islet-cell antibodies. There is a genetic twist to T1DM. The presence of a certain chromosome is necessary to trigger the autoimmune process. If that particular chromosome is absent, T1DM will not develop. With insulin being a hormone that is necessary to sustain life, the T1DM must inject insulin timely to prevent cellular damage and life-threatening diabetic ketoacidosis. Insulin resistance is usually not present in T1DM, unless the patient is overweight. With an absolute insulin deficiency, the patient is at risk for multiple problems as insulin is a driving force in homeostasis. The onset of T1DM is sudden, unlike T2DM. Diagnosis is based on symptoms, blood glucose levels, arterial blood gases, and most importantly a C-Peptide level and the presence of islet-cell antibodies. T1DM is usually diagnosed from birth to the late teens, but occasionally in the young adult. MODY (Mature Onset of Diabetes of Youth) is the diagnostic term if T1DM occurs in the adult usually over the age of 30. In the past the T1DM patient's average lifespan was 40 years from the date of diagnosis This has been significantly increased today with more advanced treatments.

GESTATIONAL DIABETES
DIABETES DURING PREGNANCY

Gestational Diabetes occurs during pregnancy. It starts when the body is unable to produce and use enough insulin needed for the increased demands of pregnancy and usually resolves at the time of delivery. It is usually diagnosed between 24 and 28 weeks by a glucose tolerance test. The patient must take in a glucose loaded drink and then have her blood glucose monitored at specific time intervals. The basis of GDM is similar to that of insulin resistance. It affects about 18% of all pregnant women. GDM is extremely dangerous for the neonate and must be treated aggressively.

TRANSIENT HYPERGLYCEMIA
HIGH BLOOD GLUCOSE

Hyperglycemia (high blood glucose) can be present without diabetes. Certain illnesses, medications, and treatments can cause a spike in blood glucose, but when those elements are removed, the blood glucose returns to normal. This is certainly seen with any heart event (e.g. AMI), use of steroids, infection, extreme anxiety and/or stress. An A1c is often used to differentiate diabetes from a transient episode of hyperglycemia.

to learn MORE ABOUT DIABETES contact your CERTIFIED DIABETES EDUCATOR SHERRI BRADY RN, CDE AT EXT. 583

WEEKLY TRIVIA QUESTIONS

Send your trivia answers to **sbrady@lrmc.org**, and the winner(s) with the most correct answers will be announced in next week's publication
NEXT ISSUE: Trials, Tribulations, and Triumphs of Diabetes

1 True/False
T2DM only occurs in the overweight, lazy individual and can be completely avoided by exercising and maintaining a healthy diet.

2 True/False
T1dm is an autoimmune disease caused by a virus.

3 True/False
Gestational Diabetes means that you are showing the symptoms of Diabetes because your fetus has Diabetes.

4 True/False
Anyone at any age with a fasting blood glucose >100mg/dl has Diabetes.

5 True/False
The patient with T1DM must recieve timely insulin injections via pump or syringe to sustain life.