

Chapter ii

Health & Medicine, Diabetes



CHAPTER II REVIEW OF RELATED LITERATURE Diabetes, also known as diabetes mellitus is described by HealthRight. com as a chronic health condition where the body is unable to produce enough insulin and properly break down sugar (glucose) in the blood. Glucose comes from food and is used by the cells for energy. Glucose is also made in the liver. Insulin is a hormone produced by the pancreas, a large gland behind the stomach. Insulin is needed to move sugar into the cells where it can be used for energy needed for body processes. With Type 1 diabetes, the body does not make any insulin. With Type 2 diabetes, the more common type, the body does not make or use insulin properly. Without enough insulin, glucose stays in the blood and causes a condition called hyperglycemia, or high blood sugar levels. Diabetes is associated with long-term complications that affect almost every part of the body. The disease often leads to blindness, heart and blood vessel disease, stroke, kidney failure, amputations, and nerve damage. Uncontrolled diabetes can complicate pregnancy, and birth defects are more common in babies born to women with diabetes. Pregnant women can temporarily develop gestational diabetes, a type of diabetes that begins late in pregnancy.

TYPES OF DIABETES

Pre-diabetes: Individuals with pre-diabetes have blood glucose levels that are higher than normal but not high enough for a diagnosis of diabetes. This condition raises the risk of developing type 2 diabetes, heart disease, and stroke.

Type 1 diabetes: Type 1 diabetes is an autoimmune disease. An autoimmune disease results when the body's immune system that fights infection begins to attack a part of the body. In diabetes, the immune system attacks and destroys the insulin-producing beta cells in the pancreas. The pancreas then produces no insulin.

An individual with type 1 diabetes must take insulin daily for proper blood sugar control. Type 2 diabetes: The most common form of diabetes is type 2 diabetes. About 90-95% of individuals with diabetes have type 2. This form of diabetes is most often associated with older age, obesity, family history of diabetes, previous history of gestational diabetes (diabetes developed during pregnancy), physical inactivity, and certain ethnicities. About 80% of individuals with type 2 diabetes are overweight. Type 2 diabetes can be treated with diet, exercise, and oral prescription medications but may require insulin shots. Gestational diabetes: Some women develop gestational diabetes late in pregnancy. Although this form of diabetes usually disappears after the birth of the baby, women who have had gestational diabetes have a 20-50% chance of developing type 2 diabetes within 5-10 years. Maintaining a reasonable body weight and being physically active may help prevent development of gestational diabetes turning into type 2 diabetes.

TREATMENT Treatment for diabetes is a lifelong commitment of monitoring blood sugar, taking insulin if prescribed, maintaining a healthy weight, eating healthy foods, and exercising regularly. The goal is to keep your blood sugar level as close to normal as possible to delay or prevent complications. In fact, tight control of blood sugar levels can reduce the risk of diabetes-related heart attacks and strokes by more than 50%. Medications: Insulin and oral medications: Many individuals with diabetes can manage their blood sugar with diet and exercise alone, but some need diabetes medications or insulin therapy. In addition to diabetes medications, a doctor might prescribe low-dose aspirin therapy to help prevent heart and blood vessel disease. Aspirin prevents blood from clotting by blocking the production of

thromboxane A-2, a chemical that platelets produce that causes them to clump. Aspirin accomplishes this by inhibiting the enzyme cyclo-oxygenase-1 (COX-1) that produces thromboxane A-2. Many oral or injected medications can be used to treat type 2 diabetes. Some diabetes medications stimulate the pancreas to produce and release more insulin. Others inhibit the production and release of glucose from the liver, which means the individual needs less insulin to transport sugar into the cells. Still others block the action of stomach enzymes that break down carbohydrates or make tissues more sensitive to insulin. On the other hand, National Diabetics Information Clearhouse defined it as a group of diseases marked by high levels of blood glucose, also called blood sugar, resulting from defects in insulin production, insulin action, or both. Diabetes can lead to serious complications and premature death, but people with diabetes can take steps to control the disease and lower the risk of complications. They also stated some ways of treating diabetes. Diabetes can lead to serious complications, such as blindness, kidney damage, cardiovascular disease, and lower-limb amputations, but people with diabetes can lower the occurrence of these and other diabetes complications by controlling blood glucose, blood pressure, and blood lipids. * Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and exercise program, losing excess weight, and taking oral medication. Some people with type 2 diabetes may also need insulin to control their blood glucose. * To survive, people with type 1 diabetes must have insulin delivered by injection or a pump. * Among adults with diagnosed diabetes—type 1 or type 2—14 percent take insulin only, 13 percent take both insulin and oral medication, 57 percent

take oral medication only, and 16 percent do not take either insulin or oral medication. Medications for each individual with diabetes will often change over the course of the disease. * Many people with diabetes also need to take medications to control their cholesterol and blood pressure. * Self-management education or training is a key step in improving health outcomes and quality of life. It focuses on self-care behaviors, such as healthy eating, being active, and monitoring blood glucose. It is a collaborative process in which diabetes educators help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions. They also have some medicines for diabetic people Over time, high levels of blood glucose, also called blood sugar, can can cause health problems. These problems include heart disease, heart attacks, strokes, kidney disease, nerve damage, digestive problems, eye disease, and tooth and gum problems. You can help prevent health problems by keeping your blood glucose levels on target. Everyone with diabetes needs to choose foods wisely and be physically active. If you can't reach your target blood glucose levels with wise food choices and physical activity, you may need diabetes medicines. The kind of medicine you take depends on your type of diabetes, your schedule, and your other health conditions. Diabetes medicines help keep your blood glucose in your target range. The target range is suggested by diabetes experts and your doctor or diabetes educator. See below for more information about target levels for good health. Medicines for Type 1 Diabetes Type 1 diabetes, once called juvenile diabetes or insulin-dependent diabetes, is usually first found in children, teenagers, or young adults. If you

have type 1 diabetes, you must take insulin because your body no longer makes it. You also might need to take other types of diabetes medicines that work with insulin.

Medicines for Type 2 Diabetes

Type 2 diabetes, once called adult-onset diabetes or noninsulin-dependent diabetes, is the most common form of diabetes. It can start when the body doesn't use insulin as it should, a condition called insulin resistance. If the body can't keep up with the need for insulin, you may need diabetes medicines. Many choices are available. Your doctor might prescribe two or more medicines. The ADA recommends that most people start with metformin, a kind of diabetes pill.

Medicines for Gestational Diabetes

Gestational diabetes is diabetes that occurs for the first time during pregnancy. The hormones of pregnancy or a shortage of insulin can cause gestational diabetes. Most women with gestational diabetes control it with meal planning and physical activity. But some women need insulin to reach their target blood glucose levels.

Medicines for Other Types of Diabetes

If you have one of the rare forms of diabetes, such as diabetes caused by other medicines or monogenic diabetes, talk with your doctor about what kind of diabetes medicine would be best for you.

Types of Diabetes Medicines

Diabetes medicines come in several forms.

Insulin

If your body no longer makes enough insulin, you'll need to take it. Insulin is used for all types of diabetes. Your doctor can help you decide which way of taking insulin is best for you.

- * Taking injections. You'll give yourself shots using a needle and syringe. The syringe is a hollow tube with a plunger. You will put your dose of insulin into the tube. Some people use an insulin pen, which looks like a pen but has a needle for its point.
- * Using an insulin pump. An insulin pump is a small machine about the size of a cell phone, worn outside

of your body on a belt or in a pocket or pouch. The pump connects to a small plastic tube and a very small needle. The needle is inserted under the skin and stays in for several days. Insulin is pumped from the machine through the tube into your body. * Using an insulin jet injector. The jet injector, which looks like a large pen, sends a fine spray of insulin through the skin with high-pressure air instead of a needle. What does insulin do? Insulin helps keep blood glucose levels on target by moving glucose from the blood into your body's cells. Your cells then use glucose for energy. In people who don't have diabetes, the body makes the right amount of insulin on its own. But when you have diabetes, you and your doctor must decide how much insulin you need throughout the day and night. What are the possible side effects of insulin? Possible side effects include * low blood glucose * weight gain How and when should I take my insulin? Your plan for taking insulin will depend on your daily routine and your type of insulin. Some people with diabetes who use insulin need to take it two, three, or four times a day to reach their blood glucose targets. Others can take a single shot. Your doctor or diabetes educator will help you learn how and when to give yourself insulin. Types of Insulin Each type of insulin works at a different speed. For example, rapid-acting insulin starts to work right after you take it. Long-acting insulin works for many hours. Most people need two or more types of insulin to reach their blood glucose targets. Diabetes Pills Along with meal planning and physical activity, diabetes pills help people with type 2 diabetes or gestational diabetes keep their blood glucose levels on target. Several kinds of pills are available. Each works in a different way. Many people take two or three kinds of pills. Some people take combination pills. Combination pills contain two

kinds of diabetes medicine in one tablet. Some people take pills and insulin. Diabetes pills help people with type 2 diabetes or gestational diabetes keep their blood glucose levels on target. Your doctor may ask you to try one kind of pill. If it doesn't help you reach your blood glucose targets, your doctor may ask you to * take more of the same pill * add another kind of pill * change to another type of pill * start taking insulin * start taking another injected medicine If your doctor suggests that you take insulin or another injected medicine, it doesn't mean your diabetes is getting worse. Instead, it means you need insulin or another type of medicine to reach your blood glucose targets. Everyone is different. What works best for you depends on your usual daily routine, eating habits, and activities, and your other health conditions.

Injections Other Than Insulin In addition to insulin, two other types of injected medicines are now available. Both work with insulin—either the body's own or injected—to help keep your blood glucose from going too high after you eat. Neither is a substitute for insulin.

Soro-soro Euphorbia nerifolia Linn. COMMON MILK HEDGE Botany Erect, shrubby, branched, fleshy, cactus-like plant growing to 2-4 meters. Trunk and older branches are grayish and cylindrical; medium branches slightly twisted and stout, fleshy, 4- or 5-angled or winged. Leaves are fleshy, oblong-obovate, 5 to 15 cm long; in young plants, longer pointed or blunt at the tip.. Stems are spiny. Flowers are solitary and short, yellow or green. Distribution Cultivated in gardens as a hedge plant. Properties and constituents Purgative, rubefacient, expectorant. Studies have yielded euphorbon, resin, gummy caoutchouc, malate of calcium, among others. Leaves considered diuretic. Latex considered purgative, diuretic, vermifuge and antiasthma. Parts used Leaves, roots and

latex. Uses Folkloric Roots have been used for snake bites. Fluid from roasted leaves used for earache. The milky juice used for asthma, cough, earache. Also, used as an insecticide. Externally, applied to sores, cysts, warts, and calluses. Juice mixed with tumeric powder used for hemorrhoids. By mouth, it is a drastic purgative. For internal use: decoction or infusion of 10 grams for 1 liter of water, 2-3 cups daily. Juice of leaves used for spasmodic asthma. In India, used for bronchitis, tumors, leukoderma, piles, inflammation, fever, earaches, anemia and ulcers. In Malaya, used for earache. In French Guiana, leaves are heated, squeezed, and the salted sap used for wheezing in babies, colds and stomach upsets. Also used for infected nails, fevers, coughs and diabetes in NW Guyana. source Studies - Anesthetic Activity: Both the alcoholic and aqueous extracts from the fresh stem of *E nerifolia* revealed significant anesthetic activity on intradermal wheal in guinea-pig and foot-withdrawal reflex in frog. - Radioprotective / Cytotoxic: Study isolated Euphol from the triterpenoidal sapogenin fraction of *E nerifolia* leaf which exerted moderate antioxidant activity with highly significant reduction of gamma radiation-induced chromosomal aberrations. It also showed cytotoxic activity on melanoma cell lines. Results provide scientific basis for claimed anticarcinogenic use. - Wound Healing: In a research for wound healing drugs, *E nerifolia* was one of the Ayurvedic medicinal plants from Ayurvedic medicinal plants found to be effective in animal models. - Triterpene: Study isolated a new triterpene from the leaves and stems of *Euphorbia nerifolia* — glut-5(10)-en-1-one. |