

Medical nutrition therapy for diabetes assignment



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Medical Nutrition Therapy for Diabetes By Scott Roberts Introduction

Diabetes is one of America's most troubling medical issues, with over 23.6 million children and adults in the United States currently diagnosed with it. Food and lifestyle choices are fundamental to diabetes care. The role of the dietitian in the treatment of diabetes' patients is crucial not only while in the hospital, but in the continued management after they are discharged. A thorough nutritional assessment should be at the core of any diabetes' patient care plan to help reach the goals of the entire multi-disciplinary team.

In this paper, we will discuss the factors that go into the medical nutrition therapy of a patient with diabetes and the desired outcomes. What is Diabetes? Diabetes is a condition in which the body either does not produce enough, or does not properly respond to, insulin, a hormone produced in the pancreas. Insulin enables cells to absorb glucose in order to turn it into energy. In patients with diabetes, the body either fails to properly respond to its own insulin, does not make enough insulin, or both. This causes glucose to accumulate in the blood, often leading to various complications.

Types There are several types of Diabetes that result in different conditions, but it can mostly be classified into 3 major groups. Diabetes Mellitus Type??

1: Once known as juvenile diabetes or insulin-dependent diabetes, this is a chronic condition in which the pancreas produces little or no insulin (the hormone needed to allow sugar (glucose) to enter cells to produce energy).

Type 2 diabetes, which is far more common, occurs when the body becomes resistant to the effects of insulin or simply doesn't make enough.

Despite active research, type 1 diabetes has no cure, though it can be managed. With proper treatment, people who have type 1 diabetes can expect to live longer, healthier lives than ever before. Diabetes Mellitus Type 2: Type 2 is the most common form of diabetes. In type 2 diabetes, either the body does not produce enough insulin or the cells ignore the insulin completely. Unlike type 1, type 2 patients don't always rely on insulin and can take drugs to regulate insulin and blood sugar levels. Gestational Diabetes: This is a type of diabetes that occurs only during pregnancy.

Like other forms of diabetes, gestational diabetes affects the way your body uses sugar (glucose) ??? your body's main source of fuel. Gestational diabetes can cause high blood sugar levels that are unlikely to cause problems for the adult, but can threaten the health and life of an unborn baby. Causes Diabetes Mellitus Type 1: Various factors may contribute to type 1 diabetes, including genetics and exposure to certain viruses. Although type 1 diabetes typically appears during adolescence, it can develop at any age.

Diabetes Mellitus Type 2: This is caused by a complicated interplay of genes, environment, insulin abnormalities, increased glucose production in the liver, increased fat breakdown, and possibly defective hormonal secretions in the intestine. The recent dramatic increase indicates that lifestyle factors (obesity and sedentary lifestyle) may be particularly important in triggering the genetic elements that cause this type of diabetes. Gestational Diabetes: During pregnancy, the placenta that surrounds the growing baby produces high levels of a variety of hormones.

Almost all of them impair the action of insulin in the tissues, thereby raising blood sugar. Modest elevation of blood sugar after meals is normal during pregnancy. As the baby grows, the placenta produces more and more insulin-interfering hormones. In gestational diabetes, the placental hormones provoke a rise in blood sugar to a level that can affect the growth and development of your baby. Gestational diabetes usually develops during the last half of pregnancy ??? rarely as early as the 20th week, but often not until later in the pregnancy. Related Medical Conditions

Due to the pathology of diabetes, patients tend to have more than one diagnosis on the time of admission, sometimes two to three or even more. When doing a nutritional assessment on a patient with diabetes, there are several related conditions that need to be taken into account before medical nutrition therapy can take place. Below are only a few of the major secondary conditions related to diabetes. Heart disease is common in people with diabetes, especially those with type 2. Obesity, aging and a sedentary lifestyle are contributing risk factors to both heart disease and diabetes.

The most common cause of heart disease in a person with diabetes is atherosclerosis ??? a buildup of cholesterol in the blood vessels. Heart disease is often present prior to a diagnosis of type 2 diabetes. Damage to nerves and hardening of the arteries can lead to decreased sensation and poor blood circulation in the feet. Damage to nerves can also cause digestive problems such as nausea, vomiting and diarrhea. A condition called ketoacidosis can occur when insulin levels get too low or glucose builds up, making the blood too acidic.

This severe complication can be caused by infection, illness or going without insulin for too long. Nephropathy, a type of kidney damage, is another complication of diabetes. The risk of developing kidney disease increases over time and can lead to kidney failure and heart disease. Careful control of blood glucose levels can help prevent kidney disease. Basic Medical Nutrition Therapy for Diabetes Medical nutrition therapy of a patient with diabetes, as shown above, has many factors and each diagnosis need to be added to the whole in order to create an effective therapy that will reach the goals of the entire team.

In this section, we will cover lab values to consider, nutritional needs, formula and supplements the can be used during the patient's stay to maximize success. Lab Values In modern times there has been an increasing number of tests used to diagnose and treat patients with diabetes.

Depending on the different diagnosis presented in the patient, and the lab values, the dietitian will gauge the management and effectiveness of the treatment (such as testing for renal function). The lab values below are those that are specifically associated with the management of diabetes. Tests Used for Diagnosis: Fasting Plasma Glucose (FPG) Test

The FPG test is the preferred test for diagnosing diabetes because of its convenience and low cost. However, it will miss some diabetes or pre-diabetes that can be found with the OGTT. The FPG test is most reliable when done in the morning. People with a fasting glucose level of 100 to 125 milligrams per deciliter (mg/dL) have a form of pre-diabetes called impaired fasting glucose (IFG). Having IFG means a person has an increased risk of developing type 2 diabetes but does not have it yet. A level of 126 mg/dL or <https://assignbuster.com/medical-nutrition-therapy-for-diabetes-assignment/>

above, confirmed by repeating the test on another day, means a person has diabetes.

Oral Glucose Tolerance Test (OGTT) Research has shown that the OGTT is more sensitive than the FPG test for diagnosing pre-diabetes, but it is less convenient to administer. The OGTT requires fasting for at least 8 hours before the test. The plasma glucose level is measured immediately before and 2 hours after a person drinks a liquid containing 75 grams of glucose dissolved in water. Results and their meaning are shown in Table 2. If the blood glucose level is between 140 and 199 mg/dL 2 hours after drinking the liquid, the person has a form of pre-diabetes called impaired glucose tolerance (IGT).

Having IGT, like having IFG, means a person has an increased risk of developing type 2 diabetes but does not have it yet. A 2-hour glucose level of 200 mg/dL or above, confirmed by repeating the test on another day, means a person has diabetes. **Random Plasma Glucose Test** A random, or casual, blood glucose level of 200 mg/dL or higher, plus the presence of the following symptoms, can mean a person has diabetes: ??? Increased urination ??? Increased thirst ??? Unexplained weight loss Other symptoms can include fatigue, blurred vision, increased hunger, and sores that do not heal.

The doctor will check the person's blood glucose level on another day using the FPG test or the OGTT to confirm the diagnosis. **Tests Used for Management:** Glycosylated Hemoglobin or Hemoglobin A1c This test is a measurement of how high blood sugar levels have been over a period of

about 120 days (the average life-span of the red blood cells on which the test is based). Excess blood glucose hooks on to the hemoglobin in red blood cells and stays there for the life of the red blood cell. The percentage of hemoglobin that has had excess blood sugar attached to it can be measured in the blood.

The test involves having a small amount of blood drawn. A hemoglobin A1c test is the best measurement of blood sugar control in people known to have diabetes. A hemoglobin A1c result of 7% or less indicates good glucose control. A result of 8% or greater indicates that blood sugar levels are too high for too much of the time. The hemoglobin A1c test is less reliable to diagnose diabetes than for follow-up care. Still, a hemoglobin A1c result greater than 6.1% is highly suggestive of diabetes. Generally, a confirmatory test would be needed before diagnosing diabetes.

The hemoglobin A1c test is generally measured about every three to six months for people with known diabetes, although it may be done more frequently for people who are having difficulty achieving and maintaining good blood sugar control. Finger Stick Blood Glucose A fingerstick blood glucose test is not as accurate as testing the patient's blood in the laboratory but is easy to perform, and the result is available right away. The test involves sticking the patient's finger for a blood sample, which is then placed on a strip. The strip goes into a machine that reads the blood sugar level.

These machines are only accurate to within about 10% of true actual laboratory values. Fingerstick blood glucose values may be inaccurate at

very high or very low levels, so this test is only a preliminary screening study. This is the way most people with diabetes monitor their blood sugar levels at home. Dietary Needs: Formulas, Supplements, and Micronutrients Depending on the nature of the secondary conditions, the tools you choose to use to treat diabetes will differ greatly. The following is a group of generally prescribed measures used to treat diabetes using medical nutrition therapy. Formulas

Glucerna is a calorically-dense formula with a unique carbohydrate blend for enhanced glycemic control. ??? For patients with type 1 or type 2 diabetes ??? For patients with impaired glucose tolerance resulting from metabolic stress, such as illness, trauma, and infection ??? For tube or oral feeding ??? For supplemental or sole-source nutrition ??? For use under medical supervision ??? Not for parenteral use Glucerna 1.5 Cal Glucerna Select Glucerna 1.0 Cal Glucerna 1.2 Cal NEPRO with Carb Steady is therapeutic nutrition specifically designed to help meet the needs and altered metabolism of patients on dialysis (Stage 5 kidney disease). In a study of NEPRO as supplemental nutrition, patients on dialysis had: Increased serum albumin Increased serum prealbumin Improved nutritional status (as signified by SGA) ??? “ Carb Steady” carbohydrate blend contains ingredients clinically shown to help manage blood-glucose response²⁻⁶ ??? For tube or oral feeding ??? For supplemental or sole-source nutrition ??? Not for parenteral use ??? Use under medical supervision SUPLENA with Carb Steady is low-protein, therapeutic nutrition designed specifically for patients with reduced kidney function. “ Carb Steady” carbohydrate blend contains ingredients clinically shown to help manage blood glucose response ???

Specifically formulated for patients with reduced kidney function ??? For tube or oral feeding ??? For supplemental or sole-source nutrition ??? Not for parenteral use ??? Use under medical supervision Supplements List of Pharmaceutical-Grade Multi-Vitamins Used With Adult Patients Vitaplex Plus Natelle Nicomide Premesis Rx Strovite Advance Folbee Plus Hematinic Plus Nephrocaps Hemocyte Plus Rena-Vite Rx Vinate II Duet Stuartnatal Duet DexFol Therobec Plus Micronutrients

Micronutrients are dietary minerals needed by the human body in very small quantities (generally less than 100micrograms/day) as opposed to macrominerals which are required in larger quantities. The Microminerals or trace elements include at least iron, cobalt, chromium, copper, iodine, manganese, selenium, zinc and molybdenum. Adequate micronutrient intake throughout life course is essential for the maintenance of health; this is why many times it is given to patients to promote faster healing and recovery. Patient Education Big lifestyle changes that diabetics need to follow, Focus mainly on the diet.

Meal plan Dietary ads ??? sweeteners, good carbs Multivitamins Alcohol consumption The Desired Outcome While there are multitudes of methods available to test for diabetes, and just about as many methods used to control it, there is still no way to “ reverse” this disease or the effects it has on the body. By using Medical Nutritional Therapy, along with other prescribed treatments, the multi-disciplinary team increases the patient’s ability to manage this sometimes-debilitating disease. Because there is no “ cure” to diabetes, education is key in preventing individuals from developing diabetes.

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While it is impossible to eradicate, due to genes that carry this disease, it is definitely possible to lessen the numbers and negative impact that accompany diabetes. Cited Work ??? American Diabetes Association. Nutrition Recommendations and Interventions for Diabetes: A position statement of the American Diabetes Association. *Diabetes Care*. 2007; 30 Suppl 1: S48-65. ??? Forsmark CE. "Chronic Pancreatitis." In: Feldman M, Friedman LS, Sleisenger MH (eds). *Sleisenger and Fordtran's Gastrointestinal and Liver Disease: Pathophysiology/Diagnosis/Management*, 7th Edition. Saunders, 2002. Butler SO, Btaiche IF, Alaniz C. Relationship between hyperglycemia and infection in critically ill patients. *Pharmacotherapy*. 2005; 25(7): 963-976. ??? Van den Berghe G, Wouters P, Weekers F, et al. Intensive insulin therapy in critically ill patients. *N Engl J Med*. 2001; 345(19): 1359-1367. ??? Van den Berghe G, Wilmer A, Hermans G, et al. Intensive insulin therapy in the medical ICU. *N Engl J Med*. 2006; 354(5): 449-461. ??? Lacy CF, Armstrong LL, Goldman MP, et al. *Drug Information Handbook: A Comprehensive Resource for All Clinicians and Healthcare Professionals*, 15th Edition. Hudson, Ohio: Lexi-Comp, Inc. , 2007. ??? Boucher JL, Swift CS, Franz MJ, et al. Inpatient management of diabetes and hyperglycemia: Implications for nutrition practice and the food and nutrition professional. *J Am Diet Assoc*. 2007; 107(1): 105-111. ??? McCray S, Walker S, Parrish CR. Much ado about refeeding. *Pract Gastroenterol*. 2005; 29(1): 26-44. ??? Jones MP. Management of diabetic gastroparesis. *Nutr Clin Pract*. 2004; 19(2): 145-153. ??? Parrish C, Yoshida C. Nutrition Intervention for the patient with gastroparesis: An update. *Pract Gastroenterol*. 2005; 29: 29-66.