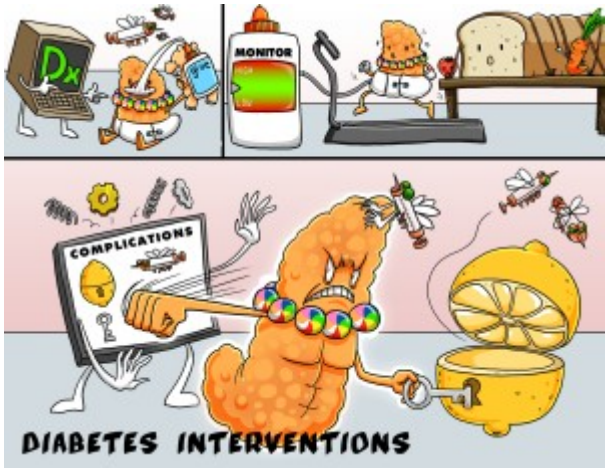
Diabetes Interventions

The nursing management of a patient with diabetes mellitus focuses on three major items: medication, exercise, and diet. Early diagnosis and identification of diabetes help reduce complications. Interventions for diabetes include diet and exercise foremost. Other interventions include insulin, oral hypoglycemics, and regular glucose monitoring.



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Early Diagnosis

Child with Diagnostic-computer

Early detection and treatment of diabetes can significantly decrease the risk of developing complications. Diagnosis involves blood tests, including a fasting blood glucose, postprandial blood glucose, or an A1C test, also referred to as the HbA1c or glycohemoglobin test.

Insulin

Insect-syringe

Exogenous (injected) insulin is needed when inadequate levels to meet metabolic needs are present. Those with type 1 diabetes will require exogenous insulin (often multiple times per day or by a continuous infusion pump) to survive. At first, those with type 2 diabetes may be able to control blood glucose levels without insulin injections by using nutritional therapy, exercise, oral agents, and noninsulin injectable agents. However, because diabetes is a progressive disease, over time, those modalities may no longer adequately control blood glucose levels, and insulin will be needed, especially during periods of illness or severe stress.

Oral Hypoglycemics

Oral Hippo-glue-bottle

Oral hypoglycemics are used only in the treatment of type 2 diabetes and include Biguanides, Sulfonylureas, Meglitinides, Alpha-glucosidase inhibitors, Thiazolidinediones, and Dipeptidyl Peptidase-4 (DPP-4) inhibitors. These drugs work to improve the mechanisms by which the body produces and uses insulin and glucose by targeting the three defects of type 2 diabetes, which involve insulin resistance, decreased insulin production, and increased hepatic glucose production.

Glucose Monitoring

Glue-bottle Monitor

Glucose monitoring is a tool for achieving and maintaining specific glycemic goals. It allows for the appropriate action to be taken regarding food intake, activity, medication dosage, and identification of complications such as hyperglycemia or hypoglycemia. The frequency of monitoring depends on factors such as the patient's glycemic goals, type of diabetes, or the patient's willingness to test.

Routine Exercise

Exercising on Treadmill

Regular exercise is an important aspect of diabetes management, as it can decrease insulin resistance and have a direct effect on lowering blood glucose levels. Recommendations include at least 150 minutes per week of moderate-intensity aerobic activity. Those with type 2 diabetes are also encouraged to participate in resistance training 3 times per week. Be sure to monitor blood glucose levels before, during, and after exercise.

Diabetic Diet

Dyed-bead-pancreas Food

The nutrient balance of a diabetic diet is essential to maintain blood glucose levels, and meal planning should revolve around the individual's needs and be balanced with insulin and exercise patterns. The key component is control of carbohydrates, as these are composed of different forms of sugar, which contribute to elevated blood glucose levels. The amount of calories ingested at one time should be monitored and controlled to avoid severe spikes in blood glucose. High-protein diets are not recommended for weight loss.

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Monitor for Complications

Monitor with Complications

There are a number of acute and chronic complications that can occur as a result of diabetes due to its progressive and debilitating nature. Acute complications may involve the misuse of insulin and being unaware of the symptoms of hyperglycemia and hypoglycemia, which can lead to conditions such as diabetic ketoacidosis (DKA) or hyperglycemic hyperosmolar nonketotic syndrome (HHNS). Chronic complications can include retinopathy, peripheral vascular disease, neuropathy, and nephropathy.

Insulin Therapy

Insect-syringe giving Therapeutic-massage

Complications of insulin therapy may include hypoglycemia, allergic reactions, lipodystrophy (atrophy of subcutaneous tissue), or the Somogyi effect. The Somogyi effect, also known as rebound hyperglycemia, occurs due to undetected hypoglycemia throughout the night (possibly due to too much insulin or lack of a bedtime snack), which causes the body to release counterregulatory hormones, thus stimulating the release of stored glucose and hyperglycemia occurs. It is often treated by decreasing the insulin dosage before bed. The Dawn Phenomenon, which is hyperglycemia upon awakening, occurs with many diabetics, especially young adults who are still growing (presence of growth hormone).

Diabetic Ketoacidosis (DKA)

Dyed-bead-pancreas with Key-to-acidic-lemon

Diabetic ketoacidosis (DKA) is a medical emergency and complication of diabetes characterized by blood sugars above 250 mg/dL, metabolic acidosis with pH below 7.3, and bicarbonate below 18 with ketones present in the urine. Patients have increased insulin requirements, which leads to a shortage. As a response, the body begins burning excess fat, causing ketone body buildup.

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