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Review Article - Hyperglycemia

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Introduction:

The word "hyperglycemia" is derived from the Greek word hyper (top) + glykys (sugar / sugar) + haima (blood). Hyperglycemia is a blood sugar greater than 125 mg / dL during fasting and more than 180 mg / dL 2 hours after a meal. The patient may tolerate impaired glucose, or diabetes, with a fasting glucose of 100 mg / dL to 125 mg / dL. The patient is diagnosed with diabetes mellitus with fasting blood levels above 125 mg / dL. [1] [2]

Etiology:

Causes of hyperglycemia include decreased insulin production, decreased glucose utilization, and increased glucose production. Glucose homeostasis is the balance between the production of glucose in the liver and the absorption and utilization of peripheral glucose. Insulin is a very important regulator of glucose homeostasis.

The second cause of Hyperglycemia:

Second causes of hyperglycemia include the following:

- Destruction of pancreas from chronic pancreatitis, hemochromatosis, pancreatic cancer, and cystic fibrosis.
- Endocrine diseases that cause peripheral insulin resistance such asCushing syndrome, acromegaly, and pheochromocytoma
- Use of drugs such as glucocorticoids, phenytoin, and estrogens
- Pregnancy diabetes is known to occur in 4% of all pregnancies and is mainly due to a decrease in insulin sensitivity.

Complete parent nutrition and dextrose supplementation It is effective as it appears after surgery or in critically ill patients.

High Risks of Hyperglycemia:

- More than 120% of the required body weight
- Family history of type 2 diabetes Native Americans, Hispanics, Asian Americans, Pacific Islanders, or African Americans
- Presence of hyperlipidemia or high blood pressure
- History of gestational diabetes [5]
- Presence of polycystic ovarian syndrome.

Pathophysiology:

Hyperglycemia in a patient with type 1 diabetes is a result of genetic, environmental, and immunologic factors. This leads to the destruction of pancreatic beta cells and insulin deficiency. In a patient with type 2 diabetes, insulin resistance and abnormal insulin production lead to hyperglycemia. According to a recent study, metabolic disorders such as type 2 diabetes mellitus increase the risk of dementia and dementia Alzheimer's disease. Alzheimer's dementia is also a risk factor for type 2 diabetes. Recent research has shown that these diseases are linked to both clinical and cellular levels. As peripheral insulin resistance leading to type 2 diabetes, brain insulin resistance is linked to neuronal dysfunction and cognitive impairment in Alzheimer's dementia.

Testing :

When diagnosing a patient with hyperglycemia, the focus should be on the patient's heart rate, mood, and volume. The glucose next to the bed can be found immediately. Tests include serum electrolyte by anion gap, urea nitrogen in blood and creatinine, and total blood count. Urine analysis with a dipstick checks glucose and ketones in the urine. Arterial blood gas or venous blood gas may be needed if serum bicarbonate is too low.

Determination of blood Glucose:

To determine if a patient has type 2 diabetes, the patient needs to have the following results from this test:

- A fasting plasma sugar level of 126 mg / dL or higher
- 2-hour plasma sugar level of 200 mg / dL or higher during a 75-gblood sugar (OGTT) test
- Random plasma glucose 200 mg / dL or higher in the presence ofsymptoms of hyperglycemia
- The hemoglobin A1c level is 6.5% or higher.

Treatment / Management:

The goals of hyperglycemia treatment include eliminating hyperglycemiarelated symptoms and reducing long-term complications. Glycemic control in patients with type 1 diabetes is achieved with a flexible insulin system and a balanced diet. Patients with type 2 diabetes are treated with dietary and lifestyle changes and medications.

Terms of Treatment:

The goals of treatment are to reduce the following complications associated with hyperglycemia:
1)Kidney and eye disease by controlling blood pressure and lowering hyperglycemia.
2)Ischemic heart disease, stroke, and peripheral vascular disease by control of hypertension, hyperlipidemia, and smoking cessation.
3)Reduce the risk of metabolic syndrome and stroke by gaining weight and controlling hyperglycemia.

Problem Prevention:

To prevent complications of hyperglycemia, the following preventive measures are recommended:
 1)See an eye doctor for an annual checkup
 2)Monitor hemoglobin A1c levels every 3-6 months
 3) Check urine albumin levels every 12 months   4)Check your feet when you visit the clinic

Different Diagnosis:

There are many conditions that can lead to hyperglycemia. Different diagnoses of hyperglycemia include:
* Diabetes mellitus type 1 and 2
*Depressive hyperglycemia
 *Medications made like steroids

Predictability:

The prognosis for people with hyperglycemia depends on how well their blood sugar levels are controlled. Chronic hyperglycemia can cause serious health and limb problems. Lifestyle changes, regular exercise, and changes in diet are the keys to better health. People who maintain euglycemia have better prognosis and improved quality of life compared to people who are hyperglycemic. When hyperglycemia problems develop, they are not actually corrected. Numerous studies have shown that untreated hyperglycemia reduces life expectancy and worsens quality of life.

Postoperative Care and Rehabilitation:

Hyperglycemia is common after surgery. High blood sugar after surgery is associated with high perioperative complications so targeted blood sugar should be kept around 140-180 mg / dL. Many teams care for postoperative patients while they are hospitalized, thus requiring a multidisciplinary team to formulate and follow guidelines for treating hyperglycemia and reducing perioperative and postoperative complications.

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