



Diabetes Related Oral and Systemic Problems, and Importance of Self-Monitoring Blood Glucose Level

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Diabetes mellitus commonly known as Diabetes, is a chronic disease that causes high blood glucose or high blood sugar. Glucose is a major sugar we get from food and drink used by body for energy. Diabetes occurs when body not producing enough insulin (blood glucose regulating hormone) or body cannot be able to use the insulin. According to International Diabetes

Federation's data, around 537 million adults (20 to 79 years) are suffering from diabetes. Its prevalence getting increased in low income to middle income countries.

There are 3 common types of diabetes:

Type 1 diabetes

An auto immune disease, in which body does not produce insulin due to disability of insulin producing cells in the pancreas. It results insufficient insulin and excess glucose in bloodstream.

Type 2 diabetes

When body cells not responsive to insulin, so pancreas tries to make more insulin and to stimulate cells to respond and absorb more glucose. This eventually causes failure of insulin making cells. This insulin shortage causes excess sugar in bloodstream called Type 2 diabetes.

Gestational diabetes

Some women develops high sugar levels while they are pregnant The body is unable to make or use the insulin needed for pregnancy leads to gestational diabetes. It is usually disappear after giving birth.

Other least common types of diabetes are monogenic diabetes and cystic fibrosis related.

Proper and regular check of sugar levels is an important part of diabetes care. An uncontrolled sugar level can lead to so many oral and systemic problems which can also be life threatening. Common systemic problems related to diabetes are:

- Retinopathy (eye problems)
- Foot problems
- Vascular disorders
- Heart attack
- Stroke
- Nerve damage
- Kidney diseases
- Sexual problems etc.
- Related conditions e.g. cancer
- Acute emergency complications e.g. hyperosmolar hyperglycaemic state (HHS), diabetic ketoacidosis (DKA)

Diabetes can also badly effect the oral health, common oral problems related to diabetes are:

- Dental caries
- Gingivitis
- Periodontitis
- Halitosis (Bad breath)
- Dry mouth
- Abnormal taste sensation
- Oral infections
- Burning mouth syndrome
- Delay wound healing
- Oral mucosal changes e.g. fissured tongue, geographic tongue
- Premalignant lesions e.g. lichen planus

Uncontrolled sugar levels can damage over all immune system of our body. Person having diabetes needs extra care to avoid all these complications by proper monitoring sugar levels as well as regular consultation with the physician.

Why to test blood glucose level

It is very important to regularly test and monitor blood glucose for proper diagnosis as well as management of the diabetes. Blood sugar levels go up and down throughout the day but in people with diabetes these changes happen more often.

For diabetes patients, self-testing blood glucose can be an important tool in managing the disease and also preventing its complications. Patients found self-monitoring more informative than urine tests or HbA1c, because of their active involvement in management of their blood sugar level resulted in better motivation, greater understanding of diabetes, and ultimately improvement in control. Different devices can be used at home for regular test. It will help you to keep an eye on your levels as you go about your life.

Blood sugar testing can provide useful information by:

Identification of high and low levels of blood sugar

Monitoring the effects of diabetes medications

Track the progress in diabetes management

How diet and exercise affect blood sugar levels

To understand the other factors affecting blood sugar level e.g. stress, illness etc.

Helps to achieve overall treatment goals

To avoid diabetes related oral and systemic complications now and in future

When to test blood glucose level

The people with diabetes should know that when and how often to check or monitor the blood sugar levels. It is basically decided by your health care practitioner. The frequency of testing varies as per the type of diabetes, medication used and also according to overall treatment plan.

Your health care provider may recommend blood glucose testing as:

- Before breakfast(fasting)
- Before meals and snacks
- Before bed
- 2 hours after meal
- During night(sometimes)
- Before and after exercise
- If you are ill
- If you change your daily routine
- If you start a new medication

Always ask your health care provider about your reasonable blood sugar range. He or she will set a target blood sugar test result for you.

American Diabetes Association (ADA) generally recommends the following target blood sugar levels:

80-130 (mg/dL) or 4.4 to 7.2 (mmol/L) before meals

Less than 180 (mg/dL) or 10.0 (mmol/L) two hours after meals

But these goals may vary from person to person depending on your age, personal health and having other medical conditions etc.

How to test blood glucose level

Health care provider or certified diabetes care specialist can recommend an appropriate device and also help you learn how to use it. Mostly people with diabetes have to check their glucose level regularly. Different devices like portable electronic device called a blood sugar meter using a small drop of blood or continuous glucose monitor(CGM) can be used at home.

There are several ways to test:

From fingertip

Prick your finger with small sharp needle and put a drop of blood on a test strip. In a few seconds your blood sugar level will appear on meter's screen. There are meters that can also test from other sites like forearm, base of thumb and thigh.

But in fingertips, the blood sugar level changes shows fast and more accurate results e.g. after a meal or after exercise.

Continuous glucose monitoring system

These devices are also known as interstitial glucose measuring devices, automatically tracks blood sugar levels throughout the day and night.

Whatever the device you have been used always keep proper record of your blood sugar levels. Mostly glucose meters have a memory, it can also alert any problem. These test record help your doctor to make any required changes in the overall treatment plan.