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11. Statistics and Blood Glucose Monitoring

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Abstract

Blood glucose monitoring observes for patterns in the fluctuation of blood glucose levels that occurs in response to diet, exercise, medication and pathological processes associated with blood glucose fluctuations such as diabetes.

The percentage of glycosylated hemoglobin in the blood reflects the average blood sugar levels over the proceeding 2 – 3 months. The statistical tools like mean, chart and graph will help us to determine the average glucose level in the body. The purpose of this study will help us to calculate the average blood glucose level from the HbA1c for past 90 days. HbA1c is a reliable diagnostic test that measures the amount of blood sugar attached to your hemoglobin. According to HbA1c % we can make changes in diabetic medicine to control blood sugar.

Key Words: Blood glucose, diabetes, mean, average, chart, graph, HbA1c.

Introduction

Blood glucose monitoring observes for pattern in the fluctuations of blood glucose levels that occurs in response to diet , exercise , medication and pathological process associated with blood glucose fluctuations such as diabetes.

Objectives

- To analyze HbA1C method to monitor Blood glucose level in the human body.
- To understand the updated research to monitor the glucose level in the human body.

- To suggest new ideas to control the diabetes.

Diabetes

Diabetes is a chronic (long-lasting) health condition that affects how your body turns food into energy.

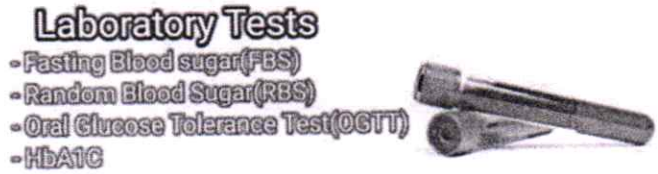
Types of Diabetes

- Type I : diabetes is a genetic condition that often shows up early in life.
- Type II : diabetes is mainly lifestyle-related and develops over time.

Fating Sugar Levels before and after Diet.

State of Health (mg/dl)	Fasting Value		After Eating
	Min.	Max.	2 hours after eating
Healthy	70	100	Less than 140
Pre-diabetes	101	126	140 to 200
Type 2 diabetes	More than 126	N/A	More than 200

Laboratory Tests



Fating Blood Sugar

Fasting Blood Sugar (FBS)

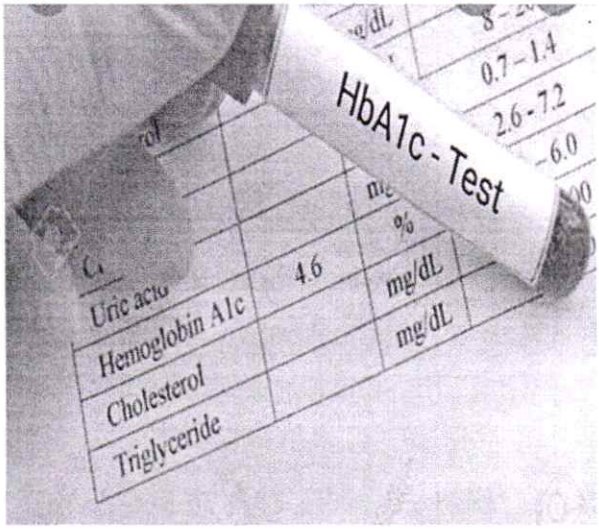
	Pre diabetes	Over Diabetes mellitus
Fasting plasma glucose test (mg/dL)	100 to 125	≥ 126

Oral Glucose Tolerance Test

Oral Glucose Tolerance Test (OGTT)

	Pre diabetes	Over Diabetes mellitus
Plasma glucose after 75 g oral glucose tolerance test	140 to 199	2 hours: ≥ 200

HbA1C -Test



The HbA1C test also known as the hemoglobin A1C or HbA1C test - is a simple blood test that measures your average blood sugar levels over the past 3 months.

For people without diabetes, the normal range for the hemoglobin A1C level is between 4% and 5.6%. Hemoglobin A1c levels between 5.7% and 6.4% mean you have prediabetes and a higher chance of getting diabetes. Levels of 6.5% or higher mean you have diabetes.

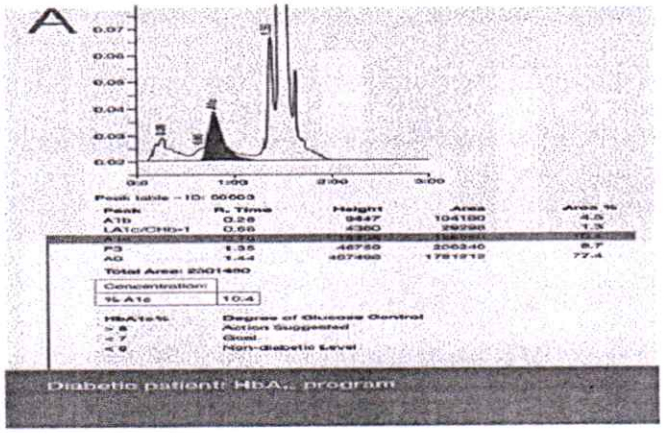
Test Score

HbA1c Test Score

	HbA1c Test Score	Mean Blood mg/dL	Glucose mmol/L
Excellent	4.0	50	2.8
	5.0	80	4.7
	6.0	115	6.3
Good	7.0	150	8.2
	8.0	180	10.0
Poor	9.0	215	11.9
	10.0	250	13.7
	11.0	280	15.6
	12.0	315	17.4
	13.0	350	19.3
	14.0	380	21.1

Degree of Glucose Control

Degree of Glucose Control



Latest Research under Diabetes

Beta cells are cells that make insulin, a hormone that controls the level of glucose (a type of sugar) in the blood. Beta cells are found in the pancreas within clusters of cells known as islets. In type 1 diabetes, the body's immune system mistakenly destroys the beta cells.

Stem Cells Therapy

Stem cell **therapy holds immense promise for the treatment of patients with diabetes mellitus.** Research on the ability of human embryonic stem cells to differentiate into islet cells has defined the developmental stages and transcription factors involved in this process.

Although **stem cell therapy cannot cure it**, receiving stem cell therapy for diabetes Type 2 from TruStem Cell Therapy has the potential to improve a patient's quality of life significantly by reducing symptoms and complications related to Type 2 diabetes, as well as slowing its progression.

1. What is the latest technology for diabetes?

Smart pens are new-generation insulin delivery devices that have a reusable injector pen with a built-in smartphone app to help people with diabetes manage insulin delivery with more accurate doses and timing. These devices also estimate the insulin quality, including storage conditions and shelf-life

2. Is this possible to test glucose level without pricking?

This is also under research that without pricking the finger of the patient the researchers in the laboratory bring the result it will be helpful for the patients.

Without finger pricking, no self-measurement of blood glucose (SMBG) is possible. However, the number of scientific studies dealing with this topic, which is highly relevant for patients, is surprisingly small.

3. Some different approaches to improve the insulin level?

Regeneration of existing beta cells.

Regeneration of beta cells using stem cells.

"Reprogramming" beta cells with differentiated cell types.

Replacing beta cells with cells from nonhuman donors.

Replacing beta cells with cells from deceased donors.

Conclusions

Even though HbA1C test is the latest method to estimate glucose level in the body we require more accuracy and reason for increasing or decreasing glucose level in the human body. There are many research to cure the diabetes still no research gives satisfied result, also only we can keep this in control.

References

- Statistical Methods-J Medhi, New Age International Publications
- https://academic.oup.com/biostatistics/article abstract/23/1/223/5842215?redirectedFrom = fulltext