

Comparison between HbA1c and Fasting Blood Sugar as diagnostic marker in prediabetes

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ABSTRACT--*We are going to compare the HbA1c and Fasting Blood Sugar in diagnosis of prediabetes and conclude that which test is better in early diagnosis of prediabetes. Correlate HbA1c and Fasting blood sugar with cardiovascular risk factor in prediabetes it is a cross sectional study done in an institutional setup, we use FBS,HbA1c,FLP and other anthropometric values, like waist circumference, hip circumference and waist and hip ratio. we are making an attempt to prove HbA1c is better diagnostic test compare to FBS in early diagnosis of prediabetes and preventing progression to diabetes.conclusion not yet arrived, still the study is in process*

Keywords-- Hba1c, FBS, pre diabetes

I. INTRODUCTION

Prediabetes is an intermediate condition in the transition between normality and diabetes. We use WHO criteria for diagnosing prediabetes condition, according to WHO guidelines, prediabetes is defined as

- Fasting blood sugar(FBS) level is between 110 mg/dl and 125 mg/dl (IFG) or
- Two-hour plasma glucose level after 75-g OGTT is between 140 to 199 mg/dL. ^{OR}
- HBA1C level of 5.7 to less than 6.5⁽⁵⁾

II. BACKGROUND/RATIONALE

Prediabetes is a condition which can progress to diabetes if its not diagnosed early, hence we are comparing HbA1c and FBS, in this both test which one is better test for early diagnosis of prediabetes,

Chen-Ling Huang et al(2014) concluded that HbA1c earliest diagnostic marker for diagnosis of Diabetes and prediabetes.⁽¹²⁾

K.A.M White et al(2017) concluded that HbA1c yield higher rate of prediabetes and diabetes compare to FBS. Moreover HbA1c has advantages over FBS in form of, patients need not to be in fasting state and it gives glycemic state of last 3 month.⁽¹¹⁾

Carlos Lorenzo et al.(2010) however concluded that single determinations of FBS and 2 hour plasma glucose seem to be more precise correlates of insulin resistance and secretion than HbA1c and in general better for other metabolic disorders.⁽¹³⁾

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III. OBJECTIVES

Correlate HbA1c and Fasting blood sugar with cardiovascular risk factor in prediabetes

IV. METHODS

Study design: its cross sectional study

Setting: in an institutional setup, we use FBS, HbA1c, FLP and other anthropometric values. Patients are taken on the OPD basis, IPD basis,

Participants: age more than 18 years , and Patients are taken on the opd basis, ipd basis

- Variables. Cases fulfilling the WHO criteria for prediabetes as follows⁽⁶⁾
 - Impaired fasting glucose (IFG) defined as fasting plasma glucose (FPG) of 110 to 125 mg/dL (6.1-6.9 mmol/L) or
 - Impaired glucose tolerance (IGT) defined as 2 h plasma glucose of 140-200 mg/dL(7.8-11.0 mmol/L) after ingestion of 75 g of oral glucose load or both
 - HBA1C level of 5.7 to less than 6.5

Data sources/ measurement: it consists of blood investigation for FBS and HbA1c and waist and hip circumference and their ration

Study size: sample size is calculated using formula given below, in 200 participants

$$n = \frac{Z^2 p(1 - p)}{d^2}$$

Statistical methods: we use chi square and linear regression analysis with the help of statical software.

V. EXPECTED OUTCOMES/RESULTS

By doing this test we can know the proper test for early diagnosis of prediabetes and help us prevent the progression of prediabetes to diabetes and further more complications related diabetes, even we can modify the life style of the people by early diagnosing the prediabetic condition.

VI. DISCUSSION

Discussion of the study will be conducted after completion of study. A number of studies on different aspects and related factors of this study were reviewed ⁽¹⁴⁻⁷⁰⁾.

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