



GLYCOSYLATED HAEMOGLOBIN (HbA1C) IS AN INDICATOR OF UNCONTROLLED DIABETES MELLITUS IN PATIENTS OF RECURRENT BALANOPOSTHITIS

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ABSTRACT

Background: Balanoposthitis is an inflammatory condition of both glans penis and foreskin, which can be a presenting symptom of diabetes, and may also be a cause of poorly controlled diabetes. Glycosylated haemoglobin (HbA1c) is an important indicator of uncontrolled diabetes mellitus. In patients of recurrent balanoposthitis, HbA1c levels are high which signifies uncontrolled diabetes mellitus.

Objectives: To evaluate the patients of Recurrent Balanoposthitis for Glycosylated haemoglobin as an indicator of uncontrolled diabetes mellitus.

Methods: We performed levels of glycosylated haemoglobin in patients of recurrent balanoposthitis those have raised random blood sugars.

Results: 40 patients of recurrent balanoposthitis with raised random blood sugars were screened for glycosylated haemoglobin (HbA1c), out of which 32 patients (80%) showed raised HbA1c levels which denotes uncontrolled diabetes mellitus.

Conclusion: Thus we conclude that Glycosylated haemoglobin (HbA1c) is an important indicator of uncontrolled Diabetes Mellitus in patients of Recurrent Balanoposthitis

KEYWORDS : Glycosylated haemoglobin (HbA1c), Diabetes Mellitus, Recurrent Balanoposthitis

Introduction

Balanoposthitis is defined as the inflammation of the foreskin and glans penis in uncircumcised males. Balanoposthitis occurs over a wide age range and may have any of multiple factors including bacterial and fungal infections or may be caused by contact dermatitis. Complex infections have been well documented, often from a poorly retractile foreskin and poor hygiene that leads to colonization and overgrowth of microorganisms. In cases of recurrent balanoposthitis, diabetes mellitus is the major contributing factor with poor glycemic control¹. Diabetic patients often present with more severe balanoposthitis with oedema and fissuring of the foreskin. Fungal balanitis is more common in diabetics, and is suggested by the presence of fissures and satellite lesions. Most of the studies suggest that men who had balanoposthitis may be at an increased risk of developing diabetes mellitus, though the exact association isn't clear. Both obesity and inadequate glucose control, a precursor of diabetes, are associated with a higher rate of candidiasis or yeast infection. Candidiasis is one of the most common causes of balanoposthitis. The etiology of balanoposthitis in diabetes is usually infectious. The commonest pathogen is *Candida albicans*. However other infective organisms like, *Streptococci*, *Staphylococci*, anaerobic bacteria, *Trichomonas vaginalis*, *Mycoplasma genitalis* and Herpes simplex virus may also cause balanoposthitis². Diabetic balanoposthitis is usually not sexually transmitted but other contributory factors for recurrence of balanoposthitis include history of daily penile washing with soap, poor perineal hygiene, and use of over-the-counter medications, uncircumcised penis and phimosis³. Uncontrolled blood sugar level with poor glycemic control repeatedly leads to balanoposthitis. High incidence of balanoposthitis was seen in diabetes mellitus thus it was considered as cutaneous marker of it⁴. Thus this study was conducted to assess the HbA1c levels in patients of recurrent balanoposthitis which have raised blood sugar levels.

Material and Methods

The study included 40 patients of recurrent balanoposthitis in the age group of 30 to 50 years male visited to our Skin V.D. opd. The patients included were having active signs and symptoms of balanoposthitis with raised blood sugars. All patients were examined, consent was taken to be a part of study and blood samples withdrawn for glycosylated haemoglobin (HbA1c) levels. For people without diabetes, the normal range for the hemoglobin A1c level is between 4% and 5.6%. Hb A1c levels between 5.7% and 6.4% suggests a higher chance of getting diabetes⁵. Levels of 6.5% or

higher mean you have diabetes.

Results

Out of 40 patients, 32 patients showed (80%) raised HbA1c levels, which denotes uncontrolled diabetes mellitus. 12 patients are in the age group of 30 to 40 years, out of which 8 patients showed increased HbA1c levels and 28 patients in the age group of 40 to 50 years, out of which 24 patients showed increased HbA1c levels [table 1]. The patients between 40-50 years age group showed increased HbA1c levels which is significantly high. The observed HbA1c level was more than 7%.

Table No:- 1 Level of HbA1c

Age group	Total Number of Patients	Number of Patients showed Increased HbA1c levels
30 to 40 years	12	8
40 to 50 years	28	24
Total	40	32



Figure -1 Patients with Balanoposthitis

Discussion

Monilial Balanoposthitis is an important cutaneous marker of diabetes mellitus which has high incidence (11%) in it⁶. Diabetes is a global endemic systemic disease with rapidly increasing prevalence in both developing and developed countries. The American Diabetes Association has recommended glycosylated hemoglobin (HbA1c) as a possible substitute to fasting blood glucose for diagnosis of diabetes. HbA1c is an important indicator of long-term glycemic control with the ability to reflect the cumulative glycemic history of the preceding two to three months⁷. HbA1c not only provides a reliable measure of chronic hyperglycemia but also correlates well with the risk of long-term diabetes complications. The valuable information provided by a single HbA1c test has rendered it as a reliable biomarker for the diagnosis and prognosis of diabetes⁸. Nondiabetes usually falls within the 4.0%–5.6% HbA1c

range. The prediabetes usually has the HbA1c levels as 5.7%–6.4%, while those with 6.5% or higher HbA1c levels have diabetes⁶. Also in one study, 26 % of recurrent balanitis patient found to have Type II Diabetes mellitus⁷. International Expert Committee which includes, American Diabetes Association (ADA), International Diabetes and European Association for the Study of Diabetes recommended the use of the HbA1c test to diagnose diabetes with a threshold of $\geq 6.5\%$ and this criterion was finally accepted by ADA¹⁰.

In our study, we found more prevalence of balanoposthitis among diabetics which is coinciding with the study by Saoji V⁵. Recurrent balanoposthitis may lead to secondary phimosis and other complications such as urethral stenosis, urethral stricture and malignancy. Such a major health problem and a marker of diabetes mellitus, it needs early diagnosis by most acceptable and accurate method. As HbA1c is an important biomarker for diagnosing diabetes according to American Diabetes Association, thus we use this in our patients of recurrent balanoposthitis as an indicator of uncontrolled diabetes instead of fasting and postprandial blood sugars. In our study 32 (80%) out of 40 patients showed increase levels of HbA1c which considered to be significant one. For more study and better evaluation it needs larger sample size.

Conclusion

Although fasting and postprandial blood sugars tests are used to diagnose diabetes mellitus in cases of recurrent balanoposthitis, we use glycosylated haemoglobin(HbA1c) instead of it in our study, which significantly showed increased levels. Thus to conclude that Glycosylated haemoglobin (HbA1c) is an indicator of Uncontrolled Diabetes Mellitus in patients of Recurrent Balanoposthitis, but larger study requires for better correlation.

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