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Short Communication

Diagnosis of Early Diabeticby The Uses of Salivary Amylase as a Detector in Al Suleimania Provinceat Shaheed Shawkat Hospital

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Abstract

Diabetes mellitus is one disease which can cause death . The objective from this work is the use of salivary amylase as the detector for the presence of diabetes.

In Al Suleimania at Shaheed Shawkat hospital this small pilot study was made comparison for the amount of salivary amylase by taking saliva sample from 30 diabetic patients and 30 no diabetic as control and measure the amount of amylase to compare the results between them.

We find Significant increase of salivary amylase in diabetic group in comparison with control group.

This study represented a continuation for another research which use saliva in the diagnosis of diabetic rather than the uses of blood or urine. I suggest to consider these results as a base for further wide researches for samples from different cities in Iraq.

Key Words:diabetes mellitus, salivary amylase.

الخلاصة

مرض السكري هو احد الأمراض التي تسبب الوفاة في العالم ويعتبر من الأمراضالمعقدة.الهدف من القيام بهذا البحث المختصر هو استخدام اميليز اللعاب للكشف عن مرض السكري.

عمل هذا البحث المصغر في مستشفى الشهيد شوكت في مدينة السليمانية حيث أخذت ثلاثين عينة لعاب من ثلاثين مراجع مصاب حديثا بالسكري وثلاثين عينة عشوائية من المراجعين غير المصابين به. بعدها قمنا بقياس كمية الاميليز في المجموعتين وعملنا مقارنة بالنتائج.

زيادة واضحة في كمية الاميليزلدى مجموعة السكري مقارنة بالمجموعة الغير مصابة بالسكري.هذه الدراسة هي استمرار لدراسات سابقة تدعم استخدام اللعاب في تشخيص مرض السكربدلا عن استخدام البول والدم .هذه دراسة صغيرة الحجم بعدد عيناتها لكن ممكن أن تعتبر قاعدةلبحوث أخرى أوسع ولعدد أكبر من المدن العراقية.

Introduction

Diabetes mellitus (DM),it is the metabolic disease diagnosed by increase blood glucose level for long period ,if not treated the patient will complain from thirst,Frequent urination, and hunger [1,2].

The diabetes can be divided into:

1-Insulin-dependent diabetes mellitusType 1 DM"for unknown causes pancreas enable to produce and give insulin usually occur on childhood [2].

2-Non insulin-dependent diabetes mellitus Type 2 DM. This occur when the cells cannot respond to insulin in true way .The main causes are obesity and not enough exercise [2] . within the progression of the disease the amount of insulin will decrease[3].Its occur on adult rather than childhood.

3-Gestational diabetes, in pregnant women who increased in blood glucose level without

past history of diabetes [2].Different organs of the body will be effected due to metabolic defect on nerves, blood vessels and hormones [4]. In diabetics the autonomic neuropathy ,micro vascular changes ,hormonal imbalances will lead to Salivary hypo function and xerostomia[5].

Human Saliva contain many components one of them Amylase where it start the chemicaldigestion process. Alpha amylasewhichconvert starch into disaccharides and trisaccharides produced in pancreas and salivary gland and support the body with energy by converted of disaccharides and trisaccharides to glucose due to the effect ofother enzymes[6].

The objectives of this study were to ensure if the diabetic present or not by measuring the salivary amylase. Another goal to use saliva rather than blood because it's easy collect, store,more safer for health staff and less risk for the patient.

Materials and Methods

Asampleof 30 diabeticwhomsuffer from the disease lesser than two years and30 non diabetic person within the age 30-50years old of both sexes were come to the laboratory of Shaheed Shawkat hospital at Al Sulaimania province.

The saliva was collected in the morning between 8-9am in the fasting state by the standardized spitting technique, for 5 minutes.The sample of saliva taken from diabetic patient and from nondiabetic come for another test.After centrifuging we take the supernatants ofsaliva resulting from centrifuging the samplesto do the laboratory investigation which include biochemical parameters for salivary alpha amylase.

Student's t test used for making compare for the result of the two group .

Results

Significant differences between mean scores regarding salivary amylase (u/l) that shown by inferential statistics of Student's t–test .

The p-value < 0.05 and the diabetic patients have high mean score of salivary amylase than among the non-diabetic patients .

The resultswhich showed in our study have been given in [Fig-1].

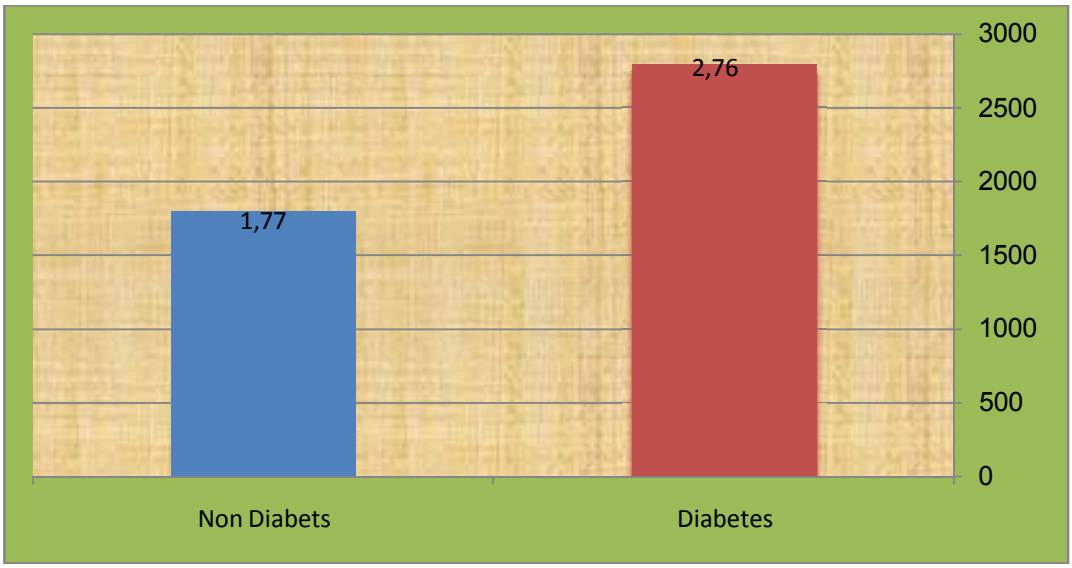

Figure 1: Mean value of salivary amylase among the two group.Significant increase in mean of salivary amylase for diabetic patients than that in control group.Mean± SD value of salivary amylase for diabetic group is 2,76u/l±0.77, while for nondiabetic is 1,77u/l±0.32.

Discussion

This study was done at Al Sulaimaniprovince to ensure whether the salivary amylase would be altered in diabetics or notin comparison with those of nondiabetic. We want to support the diagnosis of early diabetes by saliva rather than the blood or the urine. In this study we measure amylase to ensure if the diabetic change their value or not.

As in various studies showed previously this study improved increase amount of amylase in diabetic patients [7,8 ,9,10].

Prabal Pal et al [7] found in their results that the salivary amylase level is highly significantly increased in diabetic patients when compared with nondiabetic patients ,these results were consisted with results of this study ,also agree with those of Kim et al[8] who found amylase content increased with insulin treatment in rats.

Yavuzyilmaz et al [9] proved in their study that in addition to salivary protein and IgA, salivary amylase levels in diabetic group were significantly higher in control group.

Salivary secretions effects by micro vascular complications and hence, autonomic neuropathy which both of them consider as complications of diabetes [10].

From the present study results, it was concluded that the salivary amylase level in diabetic patients was significantly increased when compared with control patients, from that it support the use of saliva rather than the use of blood or urine.

The noninvasive diagnosis, more comfortable for persons ,and available many causes encourage the uses of salivain the diagnosis of many disease [11] .saliva is favorite because they contain different materiallike ions, enzymes, protein ,and so on that can be used as detector for systemic disease and give an idea about the health and disease status [12,13].

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