Association of Helicobacter pylori Infection on Type 11 Diabetics Mellitus in Al- Diwanyah Province

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الخلاصة:
أجريت هذه الدراسة لغرض التعرف على ارتباط البكتريا المسببة لتقرح المعدة والاثني عشري(الهيلوبكتر) على مرضى السكرى المزمن النوع الثاني باستخدام تقنية الامتزاز المناعي المرتبط بالأنزيم المضاعف خارج الجسم نوع الأجسام المضادة(إي ج ج) 0
وشملت الدراسة **170** مريضا فيهم **100** مريض (70) منهم مصاب بداء السكري النوع الثاني والبكتريا المقرحة ضمن الفئات العمرية (20-60) وثلاثون غير مصاب و (70) أصحاء كمجموعة سيطرة ضمن نفس الفئات العمرية السابقة وكان عدد المصابين بالتقرح المعدي (30) من مجموعة السيطرة للفترة من1/ /1/ 2012الى1 /1/ 2013 وقد أظهرت الدراسة أن المرضى المصابين بالسكرى اكثر تأثرابالإصابة بالبكتريا المقرحة للمعدة مقارنة مع غير المصابين بداء السكرى وبمعدل عمرى (40)سنة وبنسبة(58) بالمائة وقد تبين ان معدل فحص السكر بالدم للمرضى هو(212)ملغم لكل لتر دم في حين ان معدل قياس نسبة السكر التراكمي هو (2 10) بالمئة للمرضى المصابين بداء السكرى الثانوي مقارنة بالمعدل الطبيعى(2 4) بالمائة وان هناك علاقة طردية بين مرضى السكر المزمن والمرضى المصابين بالتقرح المعدي البكتيري

Abstract

This study was conducted to detect the association of *Helicobacter pylori* on diabetic patients. A total of (170) sera were collected and *H. pylori* Immunochematography assay (Sandwich ELISA Method) were used to assess the presence of specific antibodies against the occurrence pathogen in relation to residence ,age and occupation has been studied. In this study 170 patients with fasting and / or random plasma glucose, from one handered patients 70 (44) males and (26) females , aged of (20-60) years were positive for *H. pylori* enrolled, and seventy non – diabetic (38)males and (32)matched for age, sex and family history of non- diabetes mellitus ,not pregnant who who were attending the medical clinic (outpatient).

Introduction

Helicobacter pylori is a gram negative bacterium that infects large percentage . Infection with *Helicobacter pylori* has been recognized as a public health problem worldwide [(1)] affecting approximately 50% of the world population and more prevalent in developing than the developed countries[(2)] .it is a common infection in diabetic patients who have inadequate metabolic control as individuals' are colonized by *H.pylori* infection in the gastric Antrim , probably because of chemotactic factors such as tumor necrotic factor, interleukins –IL1,IL2 and IL8 which induce anumber of changes in the gastricepithelum cell metaplasia[(3)]. *Helicobacter pylori* infection has been associated with both gastrointestinal and non-gastroenterological conditions such as peptic ulcer (gastric and duodenal), gastric cancer and cardiovascular disease [(4),]. As one of the most common chronic bacterial infections in the world, the prevalence of diabetes mellitus in Pakistan is a 22% and the prevalence of Helicobacter pylori is 61%[6] . Symptoms usually don't occur until adulthood,although most people never have any symptoms ,coupled with the susceptibility of diabetic patients to a wide range of infections. as a result of chronic elevation of blood glucose level and impairment of immune functions [7,8],.Researchers have hypothesized an

association between infection with *Helicobacter pylori* and diabetes mellitus [,9]

The Aim of the Study

The aim of this study is to investigate the relationship between infections with *Helicobacter pylori* and type 2 diabetes mellitus in Al-Diwanyah province

Materials and Methods

A total of (170) patients,100(44 males and 26 females) aged 20 to 60 years were enrolled. Seventy (70) non-diabetic patients; with fasting plasma glucose (32 males and 38 females) matched for age and sex and without family history of diabetes mellitus, not pregnant, or on oral contraceptive pills who were attending the Medical , Out-patient Clinic for treatment other than D/M were recruited as controls. fife milliliters (5ml) venous blood were obtained between 08:00 and 10.00 a.m. after a 12 hour fasting period of which 3ml were dispensed into EDTA bottles for hematological and lipid profile determinations, 2ml for glucose estimation in dry glass test tubes for clotting and retraction to take place after which serum were used for total cholesterol determination. Both plasma and serum were obtained after samples were centrifuged at 3000g for five minutes.

Collection of Blood Samples

For the assessment of diabetics mellitus we had taken venous blood sample and send to the laboratory for fasting and random blood sugar and heamoglubinA1c ,five ml blood samples were obtained by vein puncture from all studies patients after cleaning the skin with 70% alcohol. they were centrifuged for 5 min at 3000 r.p.m and the serum transferred into other tubes after serum sample were collected, they were stored at -20 c until they were tested(10).

Methods

A/ *H. pylori* rapid test

H. pylori rapid tests are a rapid medical testing device for the qualitative detection of antibodies of all isotypes (IgM, ,IgA, etc)specific to *Helicobacter pylori* in human serum, plasma or whole blood specimen .this test is performed outside of the body .this test called IVD *H. pylori* test. This kit .is intended to be used as an aid in the diagnosis of *H. pylori* infection in patients with gastrointestinal symptoms.

B/ HbA1c Blood test

HemoglobinA1c test is usually able to find out the efficacy of the control measures for the last three to four months**.**

Results and discussion

Product name	Package	Performance characteristics	Reading time	Storage condition
H. pylori cassette (serum/plasma)	1 test /pack 25 packs/outer	Sensitivity **95%** Specifity**89 %** Total agreement **93.4%**	Interpret results within 10 minutes	Room temperature (4-30 C)

A total of (170) patients, (100) of diabetics mellitus ,(70) patients (44) male and(26)

Age group years	Total number	Diabetic mellitus %	Positive IgG tested	Male	Female
20-30	**42**	**27 (21.1)**	**12**	**5**	**7**
30-40	**83**	**43(47.2)**	**33**	**23**	**10**
40-50	**28**	**18(21.4)**	**15**	**10**	**5**
50-60	**17**	**12(14.3)**	**10**	**6**	**4**
Total	**170**	**100**	**70**	**44**	**26**

females in aged of (20-60) years in average age 40 years were positive for *H .pylori* in a percentage of(58 %) as in table (1). positive for *H. pylori* as in table (2). The two groups were comparable in sex, age, indicators of soce-economic statues except for living accommodation which were significantly different. This study shows a comparable prevalence of *H. pylori* infection in diabetics .We also found that the fasting plasma glucose was significantly higher in *H. pylori* infected diabetics than in non -infected patients. Indicating that *H. Pylori* infection and *H. pylori* related gastrointestinal and gastrodudenal disorder may be related to glycemic status. It has been observed that (70) of non-diabetics(30) of them were significantly association of patients of patients with positive for *H. pylori*IgG antibody[11].

Table (1) shows the sociodemographic characteristics of diabetic and non-diabetic patients. The two groups were comparable in sex, age, indicators of socioeconomic status except for living accommodation, which was significantly different.

Table (2) distribution of *H. Pylori* patients and control group

Table (3) the average value between diabetics and non- diabetics . patients for blood .sugar and HbA1c

Total number 170	***H. Pylori* Positive**	***H. pylori* Negative**
Diabetics mellitus 100 (Patients group)	**70**	**30**
Non diabetics 70 (control group)	**30**	**40**

patients and the possible role of this condition in their metabolic control. Some studies found a high prevalence of the infection in diabetic's patients and reduced glycemic control while others did not support any correlation between metabolic control and *H .pylor*i infection [12].

Test.	**Diabetics**	**Non diabetics**
Average value of blood sugar	**212 mg/dl.**	**108 m g/dl**
HbA1c	**10 .2 %**	**4.4%**
Total	**100**	**70**

The cause of incidence of *H. pylori* infection in uncontrolled DM is that ,most diabetes patients autonomic neuropathy that causing improved gastric motility in addition to impaired
gastric mucosal defense mechanism. both lead to h, pylori incidence .
In our study majority of the patients with h.pylori infection in both groups diabeticsand non –diabetics were 40 years whereas in another study the mean age was(60) years old**[11]**.

The present study determined the relationship between type 2 diabetics and helicobacter pylori and its found that diabetics patients are more prone to acquire H. pylori infection p=0.05 statistically significant the similar results were also detected in the study conducted at japan by kimiaki*et al* [13].However, the higher. Prevalence of *H .pylori* infection was also reported in diabetes mellitus than non-diabetics in a study by Amarillo*et,al*[14] .

glycomoglobin)people with prediabetics is a risk factor for getting type 2 diabetes ,the range of A1c from 5.7 to 6.4 percent as a higher.

Conclusion and Recommendations

Helicobacter pylori seropositivity and dyspeptic symptoms were similar in type 2 diabetics and non- diabetics, although *H. pylori* infection when present in diabetics appears to influence glycaemic status, the mechanism of which remains largely unknown. All statistical analyses were performed with chi- square. The result was considered significant. the present study suggests that diabetic patients are at more risk for *H. Pylori* infection in comparison to non-diabetic population so every diabetic patient with acid peptic disorder must be screened for *H. Pylori*. There is a dire need to provide proper counseling, education and awareness regarding diabetes mellitus and its association with *H. pylori* infection. Effective and appropriate measures should be taken against control of diabetes mellitus, eradication of *H. pylori*infection.

Similarly study conducted at Abakaliki by Ugwu Hadshowed that the majority of *H.pylori* infected were more than (60) years of age However, a study by .Sargyn*et, al* . show the mean age of diabetics patients with h,pylori infection is (56)years[(14)].A1c test can be used to diagnosis type 2 diabetes and prediabetes alone or in combination with other diabetes tests.when the aA1c test is used for diagnosis .the blood sample must be sent the laboratory that uses an NGSP-certified method for analysis to ensure the results are standardized.

The A1c test evaluates the average of glucose amount in blood over the last 2 to 3 months.it does this by measuring the concentration of glycosylated hemoglobin, as glucose circulates in the blood .some of it spontaneously binds to hemoglobin A the primary formof hemoglobin in adults .Hemoglobin is a red protein that carries oxygen in the red blood cells .once the glucose is bind to hemoglobin A. It remains for the life of red blood cells.(this combination of glucose and A is called. A1c or

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