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Prevalence of Helicobacter Pylori Among Dyspeptic Patients

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Abstract

A total of 150 biopsies were collected from dyspeptic patients with and without ulcers from endoscopic unit of Azadi hospital, Dohuk.
This study found a high percentage (64%) of Helicobacter pylori in the antrum of dyspeptic patients without endoscopic ulcers, while much lower percentage was found in dyspeptic patients with gastric and duodenal ulcers which was (33%) and (20%) respectively. This low level of percentage was attributed to the inhibitory effect of antibiotics (Metronidazole, Amoxicillin, Tetracycline) which received by (70%) of patients prior endoscopic examination. The study detected a high association (75%) between Helicobacter pylori and patients with chronic active duodenol ulcer . Rapid urase test was more reliable than direct smear for detection of H. pylori, which can be employed as ascreening test. Helicobacter pylori can be grown anaerobically for at least five days incubation at 37 C° by using selective antibiotiecs to prevent contamination and without providing gas mixture of 85% N_2, 10% Co_2 and 5% O_2 which was used in all previous studies.

Keywords: ***Helicobacter pylori, Dyspepsia***

Introduction

In 1983 Helicobacter pylori was isolated by Marshall & warren from a case of active chronic gastritis in Perth, Western of Australia [1,2].
It was named Campylobacter like organism [3], then called Campylobacter pyloridis or Campylobacter pylori. Finally it was placed under a new genus called Helicobacter pylori [4]. This genus include more than nine species but only two species are important, Helicobacter pylori which cause 99% of human infections and Helicobacter beilmanii acquired from patients cats or dogs [5].
It is now certain that H. pylori is associated with antral gastritis, duodenal ulcer and possibly gastric ulcers and carcinoma [6].
The purpose of this study is to detect the prevalence of Helicobacter pylori in dyspeptic patients with and without peptic ulcers in Dohuk province.

Material & Methods

Between October 1997 and October 1998 a total of 150 biopsies (50 from antrum of dyspeptic patients without ulcers and 100 biopsies from patients with both gastric and duodenal ulcers) were collected in the endoscopy unit of Azadi Hospital. Samples were transferred to the laboratory by using sterile normal saline during one hour of collection.
All samples were examined by rapid urase test and direct smear stained by gram stain. Samples of urase positive were Submitted for culture.

Rapid Urase test

Christensen's 2% urea broth was prepared according to the method described by (Koneman et al,1992).
Fresh biopsies were placed in urea broth and results were recorded positive when the inoculated broth changed from orange to dark red color within one houre of the incubation at room temperature as described by (Gabriel, 1997).

Direct Smear

All samples were grinded by pestle and smeared on the surface of clean glass slides, fixed, stained by gram stain and examined directly. The presence of pale gram negative curved, "S" or spiral shaped bacilli was considered positive.

Culture

Ten strong urase positive biopsies were grinded by a pestle under aseptic conditions and streaked on the surface of blood agar (Oxoid) supplemented with Campylosel (Bio Merieux) contain Vancomycin (10mg/l), trimethoprim lactate, (5mg/l), and Amphotericin B sulphate (2mg/l) as recommended by (Good win cs, 1985). The plates were placed into an anaerobic jar (Mc Intosh Jar) using anaerobic gas paks (BBL) and incubated at 37C° for 7 days.
Colonies were identified as Helicobacter pylori if they were gram negative curved or spiral shaped bacilli and had urase, catalase and oxidase positive.

Results

The study revealed that 32 (64%) biopsies from 50 antral biopsies from dyspeptic patients without ulcers were rapid urase positive for Helicobacter pylori within half hour or even in less than one minute with five biopsies. [figure 1].

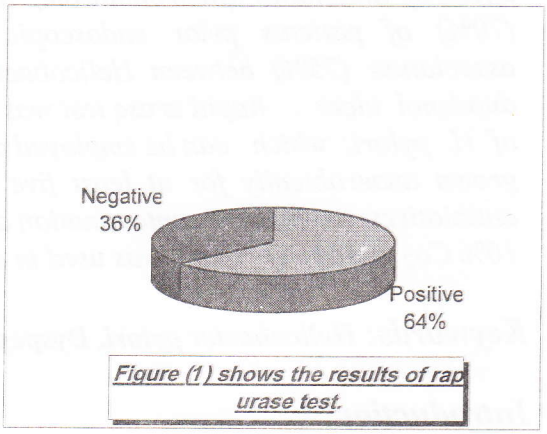


Figure (1) shows the results of rapid urase test.

Only 20 (23%) from 85 duodenal ulcer biopsies were positive by rapid urase test while 5 (33%) from 15 gastric biopsies were urase positive.
Eighty three percentage (83%) of the patients with duodenal ulcer not receiving antibiotics (metronidazole, amoxicllin, tetracycline) were positive for H. pylori by rapid urase test while all

the patients with gastric and duodenal ulcers who received antibiotics were urase negative for H. pylori [figure 2].

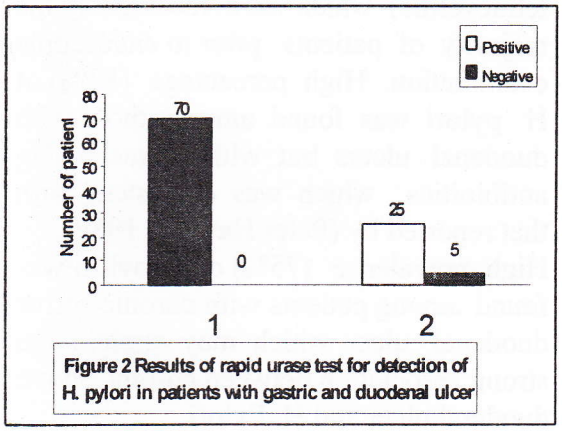
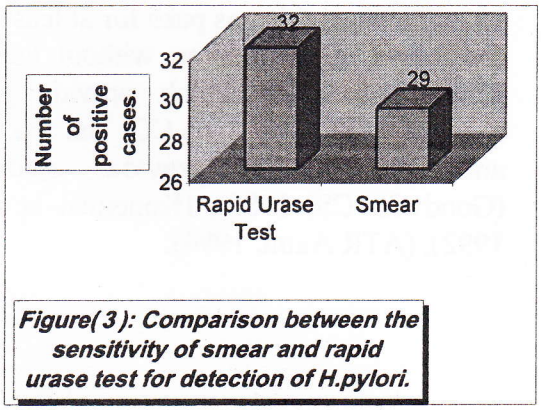


Figure 2 Results of rapid urase test for detection of H. pylori in patients with gastric and duodenal ulcer

Seventy five percent (75%) of the patients with chronic active duodenal ulers were positive for H. pylori.

Rapid urase test was more sensitive than the direct smear for the detection of H. pylori but with same specificity [figure 3]



Figure(3): Comparison between the sensitivity of smear and rapid urase test for detection of H.pylori.

All cultured biopsies were grown after 7 days of anaerobic incubation and showed small colonies. Colonies were catalase, urase and oxidase positive with gram negative curved or "S" shaped bacilli [figure 4].

Figure (4): Gram stain preperation from a colony of bacteria isolated from a gastric biopsy specimen showing the characteristic spiral and cuved shapes of H.pylori.

The bacteria were changed their characteriestic shape after subculturing into small rods and coccobacilli forms [figure 5]

Figure (5): Gram stain preperation of a subcultured colony showing coccoid & bacilli forms together with curved shapes of H.pylori.

While spiral shaped bacteria were more obvious in direct preperation from fresh biopsies [figure 6].

Figure (6): Direct Gram stained smear of duodenal biopsy taken from a case of chronic active duodenal ulcer, where the characteristic spiral appearance of H.pylori is shown (arrow).

Discussion

The results of this study revealed a high percentage of Helicobacter pylori (64%) in the antrum of dyspeptic patient's without endoscopic ulcers which is consistent with that had been reported by (schneider, 1990) and (Peter Hawker, 1989). H. pylori was not found among gastric ulcers patients because all of them received antibiotics prior to the endoscopic examination.

Low percentage was found in dyspeptic patients with both gastric and doudenal ulcers which was 33% and 20% respectively.

The results obtaind were much lower than the results reported by (Conner, 1996).

This low precentage was attributed to the inhibitory effects of antibioties (Metronidazole, amoxicillin and tetracycline) which were received by the majority of patients prior to endoscopic examination. High percentage (83%) of H. pylori was found among those with duodenal ulcers but without receiveing antibioitics which was consistent with that reported by (Peter Hawker, 1989).

High prevalence (75%) of H. pylori was found among patients with chronic active duodenal ulcer which may explain the strong association between chronic active duoderal ulcer and H. Pylori.

Rapid urase test was more sensitive than the direct gram stained smear for detection of H. Pylori which is in consistent with that reported by screening test for Helicobacter pylori.

Helicobacter pylori can be grown on Blood agar Supplemented with antibioties and incubated anaerobically by using anaerobic gas paks for at least five days of incubation without using campy gas paks which provide gas mixture of 85% N_2, 10% CO_2 and 5% O_2 and used in all previous studies (Goodwin CS, 1985), (Koneman et al, 1992), (ATR Axon, 1994).

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مدى انتشار جرثومة H.pylori بين المرضى المصابين بعسر الهضم

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الخلاصة

شملت الدراسة فحص (١٥٠) خزعة أخذت من معدة واثني عشر لمرضى مصابين بعسر الهضم في وحدة التنظير الداخلي لمستشفى آزادي في دهوك.

وجدت الدراسة نسبة عالية (٦٤٪) لجرثومة Helicobacter pylori في الجزء البوابي لمعدة مرضى غير مصابين بقرحة المعدة وأثني عشر، بينما سجلت نسبة أقل للجرثومة في مرضى مصابين بقرحة المعدة والأثني عشر والتي كانت ٣٣٪ و ٢٠٪ على التوالي، ويعود ذلك إلى تأثير المثبط للمضادات الحياتية (ميترونيدازول، اموكسيسلين، تتراسايكلين) أخذت من قبل ٧٠٪ من المرضى قبل فحص الناظور.

بينت الدراسة بأن هناك علاقة قوية بين جرثومة H . pylori وقرحة الأثني عشر المزمن الفعال، إذ سجلت في ٧٥٪ من المرضى مصابين بقرحة الإثني عشر.

وجدت الدراسة بأن فحص اليوريز السريع كانت اكثر حساسية من المسحة المباشرة للكشف عن هذه الجرثومة إذ يمكن استعمالها كفحص تشخيصي سريع في مختبرات المستشفى.

تستطيع الجرثومة النمو لا هوائيا لمدة في حرارة ٣٧° ولمدة لا تقل عن خمسة أيام من الحضانة وباستخدام المضادات الحياتية لمنع حدوث التلوث الفطري والجرثومي وبدون استعمال مزيج من الغازات النايتروجين ٨٥٪، ثاني أو كسيد الكاربون ١٠٪، والأوكسجين ٥٪ والتي كانت توصي بها الدراسات السابقة لعزل جرثومة H. pylori

بلاڤبونا بەکتریا H.pylori ل ناڤبە را نە خوشیێت توشبووین بە ر سوژکێ

عە لی یە حیيا سە عید و سە فە ر مو حە مە د بێداوی
کۆلێجی پزیشکی / زانکۆی دهك / هەرێمی کوردستان - عێراق

کورتە

ڤەکولین لێنێرینا (١٥٠) بایوپسیا (خزعە) ڤەدگریت کو ژگەدەو دوازدە گرێیا نەخوشێت بەرسوژ هەی ل یەکا (تنڤیر داخلی) یا نەخوشخانا نازادی ل دهوکێ هاتینە وەرگرتن.

ڤەکولینێ ناشکراکر کو نسەو نەخوشێت کولبونا گەدەی ودوزادەگرێ نسەیی ریژەکا بلند ٦٤٪ ژبەکتریا Helicobacter pylori د دەرکوکێ خواریێ گەدەی دا یا هەی، بەلێ نسەو نەخوشێت کولبونا گەدەی و دوازدەگرێ هەی ڤەکولینێ ریژەکا کێمتر ژبەکتریایێ بو ناشکراکر کو نسەوژی ٣٣٪ و ٢٠٪ ل دوی نێك. نەڤەژی ڤەدگەریتە کارتێکرنا نەنتی بایوتیك بێت وەك (میترونیدازول، نەموکسیلین، تتراسایکلین) کو ٧٠٪ ژ نەخوشا بەری لێنێرینا ئیندوسکوپی (ناڤورێ ب کارئینابون.

ڤەکولینێ ناشکراکر کو پەیوەندی یەك ب هێز یاهەی دنێڤ بەرا بەکتریا H. pylori وکولبونا کەڤنارا دوازدە گرێ کارتێکەر دا، چونکی لدەف ٧٥٪ ژ نەخوشێت کولبونا دوازدە گرێ هەی هاتە تومارکرن.

دیسان ڤەکولینێ ناشکراکر کو لێنێرینا بلەزا (یوریزی پتر هەستدارە ژ (مەسحا) ئێکسەر بو ناکراکرنا ڤێ بەکتریایێ و دشێن وەك لێنێرینەك دەست نیشانکری و وبلەز ل ناقیگەهێت نەخوشخانێ ب بکار بینن.

بەکتریا دشێت بێ با ول پلا گەرما ٣٧ وەراریێ بکەت وماوەکێ نەکێمتر ژ (٥) روژا ژڤەمانێ (فترە الحجانە- Incubation period) وب کار ئینانا نەنتی بایوتیکا بو نەهێلانا روی دانا پیش بونا قارچکی (فگری) وبەکتریایی وبسی ب کارئینانا تێکەلو کەك ژ غازێت نایترووجین ٨٥٪ و کاربون دای ئوکساید ١٠٪ و ئوکسجین ٥٪ کو ڤەکولینێت بەری نهو دەست نیشانکربو جوداکرنا بەکتریا H. pylori.

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