Prevalence of *H pylori* in obese attending Obesity therapy Unit

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ABSTRACT

Background: Obesity is an increasing health problem in developed countries and has grown into a major global epidemic. Recent studies suggested colonization of the stomach by Hpylori might affect gastric expression of appetite- and satiety-related hormone and patients cured of H pylori infection gained weight. Obesity and Helicobacter pylori (H. pylori) are important because of the problems they lead and their frequency of occurrence.

Objectives: To find out the prevalence of H. pylori infection in obese.

Type of the study:A cross-sectional study

Methods: A total of 32 obese female admitted to the study. Body mass indices (BMI) of all subjects were calculated H. pylori positivity were studied.

Results: The age range of the obese was (20-59) and the BMI (was 25-55 kg/m²). 26 obese (81.25%) were H pylori positive, and all obese above 45 were H pylori positive.

Conclusions: Obesity and h pylori are closely associated and the prevalence of h pylori increased with obesity. We consider that H. pylori infection can be a risk factor for obesity and almost all obese patients above 45 years were sero positive. However, further studies evaluating more subjects are required. And we need to do national survey about h pylori prevalence in our community

Keywords:Obesity; helicobacter pylori; BMI

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Obesity has grown into a major global epidemic. By 2002, nearly 500 million people were overweight worldwide. In the United States (US), with more than two-thirds of Americans now overweight [1]. Obesity is linked with higher risk for several serious health conditions, such as hypertension, type 2 diabetes, hypercholesterolemia, coronary heart disease (CHD), stroke, asthma, and arthritis [2]. Obesity in adults is generally defined as a BMI of 30.0 or greater, with BMI of 25.0-29.9 categorized as overweight.[3].*Helicobacter pylori,* is a gram-negative *a* spiral-shaped pathogenic bacterium found on the human gastric mucosa, was first isolated by Warren and Marshall [4]. *H.pylori* is a common bacterium affecting about 50 percent of the world's population .This bacterium causes chronic gastritis, peptic ulcer disease and/or gastric malignancies also studies have its involved in pathogenesis of some extra gastrointestinal disorders like Reynaud phenomena and migraine and cardiovascular diseases.[5,6,7] .The relationship between obesity and H pylori eradication is controversial. There are data which demonstrate that eradication of H pylori significantly increases the incidence of obesity in patients with peptic ulcer disease, since it increases the level of BMI [8,9]. Obesity is a well-known risk factor for the development of GERD while occurrence of GERD after the eradication of H. pylori infection has been reported and this could be explained to the restoration of acid secretion. [10,11,12]. While according to some studies, the risk of H pylori infection does not increase in overweight young Persons [13] After *H. pylori* cure, plasma ghrelin increased profoundly in asymptomatic subjects. This could lead to increased appetite and weight gain, and contribute to the increasing obesity seen in Western populations where *H. pylori* prevalence is low [14]

Methods : 32 randomly selected female obese attended obesity research and therapy unit (Baghdad-Iraq) between May 2014 , and July 31, 2015. Men excluded and age above 20 were included,

Laboratory Assessment: Serological assay for Helicobacter pylori antibody is a noninvasive method to detect H. pylori infection. It has been reported to have sensitivity and specificity in predicting the status of H. pylori infection in untreated patients as accurately as invasive tests[15,16].A commercially available enzyme-linked immunosorbent assay kit (Acon, USA) with reported sensitivity and specificity of more than 95% was used to investigate the prevalence of H pylori infection.

Results: The seroprevalence of *H. pylori* was 81.25% (26/32) for all cases of obesity. distributions of seropositivity of H pylori with respect to age and BMI in cases summarized in table 1.

Table 1 Seropositivity of h. pylori in respect to age and BMI

Age	20-29	30-39	40-49	50-59
number	7	9	9	7
BMI	38-52 kg/m2	34.7-41	26-55	37-45
H. Pylori positive	2 (28%)	7 (77.7%)	8 (88.8 %)	7 (100%)

Discussion : Increasing attention has recently been paid to the role of H pylori in the pathogenesis of nutritional problems and body weight because of its potential effects on gastric leptin homeostasis which is produced by fat cells and also produced by chief cells in the human stomach, and levels are affected by Helicobacter pylori-associated gastritis. [17] Multiple studies have shown that *H pylori*-positive persons produce lower amounts of ghrelin, its eradication is associated with a subsequent increase in ghrelin production[18,19].Prevalence of H pylori infection is related to several confounding factors, such as age and socioeconomic status. Acquiring of infection in developing countries seems to be nearly universal. [20] In our study we found most h. pylori positive cases were above 30 and 100% of obese above 50 years of age were h. pylori positive, if we compare the prevalence of h pylori in our study with study done by Nawafal et al at north of Iraq showed about 78% of people above 40 were positive for H Pylori [21]. In nearby countries its almost identical like Turkey and Iran where the sero positivity are 80.0% and 88.4-93% respectively while in north Africa like Egypt 90.0%, Algeria 43-92% but in developed countries like United States 30.0% , Canada 23.1% and Germany 48.8% . That's mean if we can compare our results with nearby countries its evident that the sero-positivity of obese similar with that of general population.

Obesity is an important public health problem in the United States. Because of its potential effects on gastric leptin homeostasis, *Helicobacter pylori* may play a role in regulating body weight. In large, US population-based study they found that there was no significant relation between *H. pylori* status, *cagA* status, and being overweight [22] .The prevalence of H. pylori infection in morbidly obese patients is still controversial . Overall, available studies report a lower prevalence of H. pylori infection in obese patients than in the general population [23]. Serum leptin, which is primarily synthesized by adipose tissue, regulates food intake and body weight homeostasis. Leptin is now known to be synthesized in the stomach as well and this source may also be involved in the regulation of food intake and satiety). Gastric inflammation, such as that induced by *H. pylori* (alters leptin secretion in the stomach and change in gastric leptin level resulting from *H. pylori*-induced inflammation may influence food intake and body mass index.[17]Nweneka et al stated that circulating ghrelin concentration is lower in people infected with H pylori compared to those not infected with the bacterium also this study suggested that eradicating H pylori does not have any significant effect on circulating ghrelin.[24] weight gain following *H. pylori* eradication has been demonstrated in numerous studies Zuma et al) reported that eradication of *H. pylori* is associated with decreased gastric leptin levels and subsequent weight gain, although serum leptin levels did not change. [25] In conclusions our study showed high incidence of H pylori infection in obese patients, but this could be a part of H. pylori infection status in general population if we compare the prevalence of H. pylori with nearby countries. This study calls for further studies regarding survey of h pylori infection in general population.

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