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Duodenal ulcer and gastric cancer patients infected with *Helicobacter Pylori* in AL-Najaf City, Iraq

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Abstract---A case-control study was carried out in Al- Sader Medical City in AL-Najaf Governorate, Iraq, during period from 1/9/2021 to 1/3/2022. *Helicobacter pylori* (*H. pylori*) Antigen Rapid Test Cassette (Feces) has been used to diagnosis all patients infected with *H. pylori*. All patients with duodenal ulcers and gastric cancer have been diagnosed by a physician using an endoscope and biopsy, respectively, in the department of tumors at AL-Sader Medical City. The results proved that there were 27 patients; 11 male (40.7%) and 16 female (59.3%) infected with *H.pylori*. Age group 20-30 was the highest infected with *H.pylori* (14 patients, 51.9%) followed by 31-40 (8 patients 29.6%), 41-50 (4 patients 14.8%) and 51-60 (1 patient 3.7%). Conclusions: *Helicobacter Pylori* may cause the most cases of duodenal ulcer and gastric cancer in patients that infected with this bacterium.

***Keywords*---**Duodenal Ulcer, Gastric Cancer, Male, Female, *Helicobacter Pylori.*

Introduction

Due to the fact that *H. pylori* is a spiral, motile, gram-negative bacteria that is resistant to stomach acid, infection with it can lead to a number of post-infection problems, including duodenal ulcers, peptic ulcers, and stomach cancer (Hadi and Aljanaby, 2022). About half of the world's population, mostly in impoverished

nations, has *H. pylori*. When *H. pylori* invade the host, it triggers a series of long-lasting inflammatory responses in the stomach's mucosal lining, leading to persistent heartburn, gastritis, and anemia (Lehours and Robinson, 2020). Due to its resilience to stomach acid, the helical, motile, gram-negative bacteria Helicobacter pylori is one of the most frequent to infect people of all ages (Eslami et al., 2019). It also causes a number of post-infection problems, including duodenal ulcers, peptic ulcers, and stomach cancer (Alipour, 2020). Several studies have shown that this disease, particularly in underdeveloped nations, infects nearly half of the population (Chonwerawong and Ferrero, 2017). Chronic stomach mucosal inflammation results from the immune system's strong reaction to *H. pylori* invasion of the host. Due to the production of several immunological markers as IL-10, IL-2, CD14+, and CD163+, innate and adaptive immunity are crucial in the fight against this pathogen. Human CD14+, which is primarily generated by macrophages and monocytes, is regarded as a crucial component of the innate immune system (Medhat and Aljanaby, 2022).

Methods

A case-control study was carried out in Al- Sader Medical City in AL-Najaf Governorate, Iraq, during period from 1/9/2021 to 1/3/2022. Stool antigen tests have been used in the diagnosis of *H. pylori* positive patients with 94% sensitivity and 97% specificity with a 100% positive detection rate at 1ng/ml of pylori antigen in stool specimens. All patients with duodenal ulcers and gastric cancer have been diagnosed by a physician using an endoscope and biopsy, respectively, in the department of tumors at AL-Sader Medical City (Aljanaby et al., 2022).

Results

Total patients infected with *H.pylori*

Table 1 show the numbers and percentages of patients infected with *H.pylori* according to age groups and genders that were included in the current study. The results demonstrated that there were 27 patients; 11 male (40.7%) and 16 female (59.3%) infected with *H.pylori*. Age group 20-30 years old was the highest age infected with *H.pylori* (14 patients, 51.9%) followed by age group 31-40 years old (8 patients 29.6%) and the age group 41-50 years old infected with *H.pylori* (4 patients 14.8%) and age group 51-60 years old (1 patient 3.7%).

Table 1: Numbers and percentages of total patients infected with *H.pylori*

Age group/ years	Patients with *H.pylori*		Total (100%)
	Male	Female	
20-30	2	12	14(51.9 %)
31-40	5	3	8(29.6 %)
41-50	3	1	4(14.8 %)
51-60	1	0	1(3.7 %)
Total	11(40.7 %)	16(59.3%)	27(100%)
	27(100%)		

Total patients infected with *H.pylori* and duodenal ulcer

Table 2 show the numbers and percentages of patients infected with *H.pylori* and duodenal ulcer according to age groups and genders that were included in the current study. The results demonstrated that there were 22 patients; 12 male (45.4%) and 10 female (54.6%) infected with *H.pylori* and duodenal ulcer. Age groups 20-30 and 31-40 years old were recorded 7 patients (31,8%), while age group 41-50 recorded 5 patients (22.7%) and age group 51-60 with 3 patients (13.7%).

Table 2. Numbers and percentages of total patients with *H.pylori* and duodenal ulcer

Age group/ years	Patients with *H.pylori* and duodenal ulcer		Total (100%)
	Male	Female	
20-30	4	3	7(31.8%)
31-40	5	2	7(31.8%)
41-50	1	4	5(22.7%)
51-60	2	1	3(13.7%)
Total	12(54.6 %)	10(45.4 %)	22 (100%)
	22(100%)		

Total patients infected with *H.pylori* and gastric cancer

Twenty patients infected with *H.pylori* and gastric cancer was collected. The results proved that there were 8 male (40%) and 12 female (60%). Age group 51-60 years old was the highest age infected with *H.pylori* and gastric cancer (10 patients, 50%) followed by age group 20-30 (6 patients, 30%), age group 31-40 (2 patients, 10%) and age group 42-50 (2 patients,10%) (Table 3).

Table 3: Numbers and percentages of total patients with *H.pylori* and gastric cancer

Age group/ years	Patients with *H.pylori* and gastric cancer		Total (100%)
	Male	Female	
20-30	2	4	6(30%)
31-40	1	1	2(10%)
41-50	0	2	2(10%)
51-60	5	5	10(50%)
Total	8(40%)	12(60%)	20 (100%)
	20(100%)		

Discussion

The results demonstrated that there were 27 patients; 11 male (40.7%) and 16 female (59.3%) infected with *H. pylori*. The present study proved that the

percentage of male infected with *H. pylori* is slightly lower than female; these findings could be explained by hormonal differences between the genders. The result of present study also in agreement with Mohammed and Aljanaby (2020) who they demonstrated that the percentage of female was (53.3 %) and the percentage of male was (46.7 %). Present study is not agreed with previous study in China by (Zhuang et al., 2015) proved that the percentage of male infected with *H. pylori* was less than female. The results showed that age group 20-30 years old was the highest age infected with *H. pylori* (51.9%) followed by age group 31-40 years old (29.6%) followed by age group 41-50 years old (14.8%) while the age group 51-60 was the lowest age infected with *H. pylori* it is disagree with previous Study in Iraq demonstrated that high prevalence of H. pylori was occur in patient with age group 35- 60 years old (43.9 %) compared to younger age 20-34 years old (30.89 %). In the gastrointestinal tract peptic ulcer is induced following damage to mucosa and sub-mucosa tissues, which occurs due to the imbalance between invasive factors (secretion of gastric acid, pepsin, bile salts, increase of oxygen free radicals, consumption of non-steroidal anti-inflammatory drugs, and infection with *H. pylori*) and host defensive mechanisms (mucus, bicarbonate, prostaglandin, antioxidant, and blood circulation (Zhang et al., 2016). Peptic ulcer disease is classically defined as a lesion in the mucosa of the human gastrointestinal tract which affects millions of people all around the world, Peptic ulcers are usually located in the stomach or proximal duodenum., One the important causes of morbidity and mortality all the world is Peptic ulcer disease that affecting the life of millions of people in their everyday lives (Jolaiya et al., 2020).

Conclusions

Helicobacter Pylori may cause the most cases of duodenal ulcer and gastric cancer in patients that infected with this bacterium

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