Determination the Complications of Helicobacter Pylori at Marjan Teaching Hospital in Hilla City

Mohammed Malih Radhi[1], A. Prof. Dr. Nada Khazal Kadhim Hindi[2], Rusull Hamza Kh. AL-Jubori [3]

1(MSc Community Health Nursing, Kut Technical Institute/ Middle Technical University- Iraq).

2 (PhD in microbiology, Department of Basic and Medical Science, College of Nursing, Babylon University, Babylon Province, Iraq).

3 (Community Health Nursing/ Babylon Health Directorate- Iraq).

Abstract:
Background: *H. pylori infection occurs when a bacteria with this name causes infection in the stomach. This usually occurs in childhood. There may be an infection of H. pylori bacteria, a common cause of peptic ulcers in more than half of the world population. The study aims at assess the complication of H. pylori in Hilla City.*

Methodology: *A descriptive design was conducted in Hilla City deals patients who diagnosed with H. pylori . The data collected by a well trailed investigator and analyzed thro the used descriptive statistic.*

Results: *The study findings depicts the (55%) out total number of the study sample there were diagnosed with H. pylori have been gastritis.*

Conclusions: *Patients who admission to hospital and who diagnosed with H. pillory have been Gastritis. Gastritis cases are the most common complications of patients with H. pylori, and small ratio of gastric cancer is associated with H. pylori bacteria infection.*
Recommendations: *Further studies that can be conducted to involve a national level to identify the causes and risks factors of H. pylori in rural and urban areas.*
Key words: *Determination, Complications, H. pylori.*

I. INTRODUCTION

Helicobacter pylori is one of the most prevalent global pathogens and colonises an estimated 50% of the world's population. It was first described in gastric biopsies by Warren and Marshall in Australia in 1983, H. pylori is a Gram-negative bacillus that infects the human stomach mucosa and produces diseases of the upper gastrointestinal tract such as chronic gastritis, peptic ulcer disease, gastric marginal zone/mucosa-associated lymphoid tissue (MALT) lymphoma and gastric carcinoma. More recently, it has been suggested that H. pylori may be associated with extraintestinal diseases, including immune thrombocytopenic purpura, refractory iron deficiency anaemia and vitamin B12 deficiency [1].

The precise epidemiology of H. pylori infection still remains unclear; however, studies have shown that ingestion of contaminated food may increase the risk of H. pylori infection. Person-to-person transmission by oral-oral, faecal-oral or gastro-oral exposure is suggested to be the most likely route of transmission[2].

H. pylori infection causes chronic gastritis in infected individuals and is causally linked to PUD, Mucosa-Associated Gastric Cancer and lymphoid tissue (MALT) lymphoma, The majority of infected individuals remain a symptomatic, but (10% - 20%)will develop PUD during their lifetime and about 1% will develop gastric cancer ,Host specific cofactors and H. pylori strain variability play an important role in the pathogenesis of Peptic ulcer diseases and gastric cancer H. pylori infection is more commonly found in endoscopy staff, gastroenterologists, groups of healthcare workers, intensive care nurses, and those caring for developmentally disabled individuals. The presence of Helicobacter pylori is significantly increased in patients with gastro-esophageal reflux disease [3].

In all infected persons with Helicobacter pylori the outcome of colonization in gastric is a chronic active gastritis. However, the gastric distribution of Helicobacter pylori and the severity of the chronic inflammatory response could differ according to different factors. most of those infected individuals progress no other complications and are often without any clinical symptoms [4].

The pathogenesis of the different clinical outcomes is multifactorial with an influence by host factors, especially those governing the severity of the immune response as well as the virulence of the infecting organism and environmental factors (mainly diet) often playing a dominant role. (AL-Jinahi, 2014).The pathogenesis of H. Pylori is summarized in Fig. (1) which leads to three main Gastro duodenal Diseases [5].

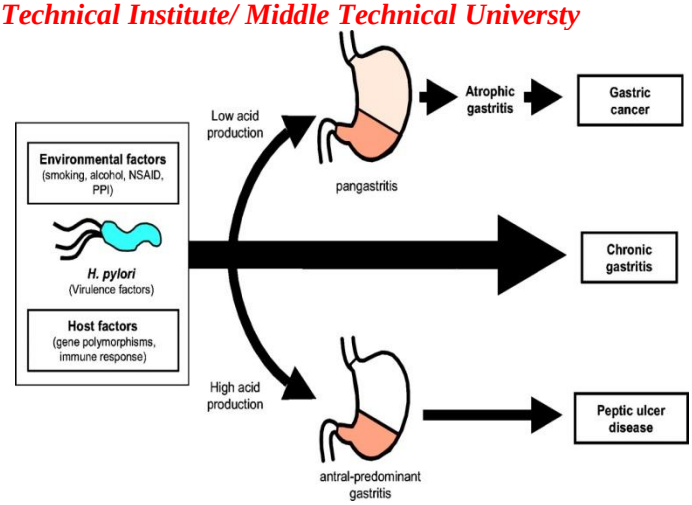

Fig. (1) pathogenesis of H. Pylori [6].

To avoid the harsh conditions in the stomach cavity (gastric lumen), these bacteria developed the mechanism of resistance to the stomach acid of the (microbicidal acid) by the colonization in a very narrow place of gastric ulcer and the secretion of urease enzyme, which analyzes the urea in the middle to the ammonia . The effect is that the acid is around the lining of the stomach, which allows it to stay in the human stomach for life if not treated with antibiotics life[7].

The number of peer-reviewed articles on H. pylori is still growing (Figure 2). Although the whole genome sequence was completed in 1999 [8], a great deal of research is still needed to understand the growing concern of the multiple-drug resistance issue. In addition to drug resistance, further studies are also needed to understand the host pathogen interaction, transmission route, and its relationship with other microorganisms and diseases.

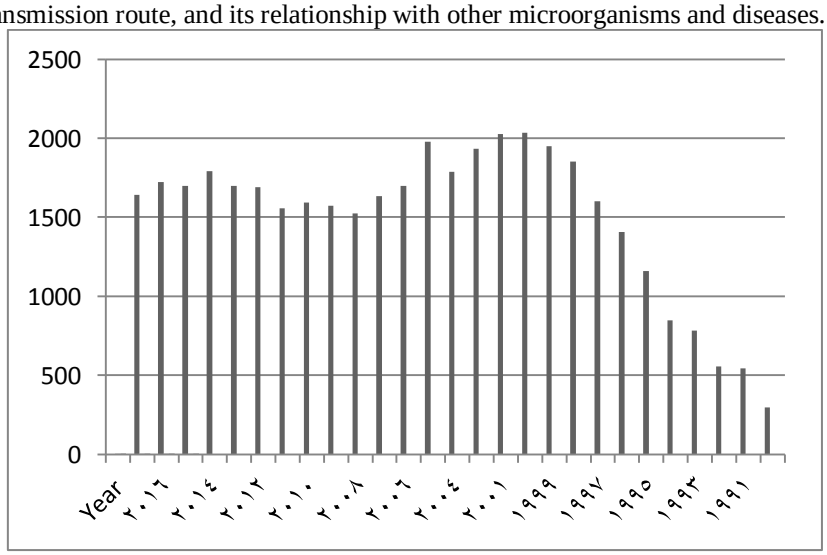

Figure (2): Number of peer-reviewed publications per year on Helicobacter pylori using Pub Med search (key words used were Helicobacter pylori or H. pylori in anywhere in the paper) [9].

The prevalence of H. pylori has been changing over the last decades, with a decrease of the prevalence H. pylori infection in most countries. The changing epidemiology of the bacterium has been associated with a parallel decline in gastric cancer and peptic ulcer disease .it may have an impact on the changing epidemiology of other diseases, such as allergies, asthma and gastro-esophageal reflux disease [10].

Over the previous years, several studies reported some data on the prevalence of H. pylori infection in both (adults and children) in Asia, Africa ,Europe, Canada and Latin America [11].

Helicobacter pylori is the most prevalence infection agent ,found in the stomachs, at least in half of world's Peoples. Despite different geographical location and socioeconomic status, the most common infection in the world is H. pylori bacteria[12].

The different prevalence of this bacteria spreads from several countries and other factors such as social ,age, nutrition or ethnics in the individual Country[13]. The High rate of infection by H. pylori may be correlated with the drop of socioeconomic status ,like poor hygiene and sanitation [14].

Some factors contribute to the elimination of H. pylori such as housing condition and hygiene. Anyway, the new H. pylori infection develops in men and causes complex infection whenever left without treatment [15]. Infection

of H. pylori tends to gather in one family. The environment abound H. pylori infection when people are living closed or crowded.

The reservoir of H. pylori is human stomach ,some studies have shown that this bacteria can be found in isolated from stool [16] .

Despite the geographical proximity of Iraq, Iran and Turkey, the gastric cancer incidence of differs hugely among these countries. Gastric cancer is one of the major global health threat and we can say it is the third leading cause of cancer deaths worldwide it is causing an estimated >720,000 deaths per year globally , Helicobacter pylori is the most important etiologic factor that lead to gastric cancer. Approximately 50% of the global is infected by H. pylori [7] .It is estimated that 89% of noncardia gastric cancers, H. pylori infection are attributed for 78% of gastric cancer cases[17].

Gastric carcinogenesis is promoted by H. pylori through multiple mechanisms. It causes chronic gastric inflammation that may develop to the precancerous changes of atrophic gastritis and intestinal metaplasia. The risk of gastric cancer increases is associated with the severity and extent of those precancerous changes[18].

H. pylori is one of the most important prevalent global pathogens and can lead to gastrointestinal disease including peptic ulcers, gastric carcinoma and gastric marginal zone lymphoma [19].

Since the discovery of Helicobacter pylori , strong evidence has indicated that H. pylori infection has an important role in the pathogenesis of peptic ulcer disease, chronic gastritis and gastric malignancy. Poor living conditions and genetic susceptibility are considered risk factors for H. pylori infection in both developing and developed countries [20].

Poor hygiene conditions ,low socioeconomic status, bed sharing, overcrowding, interfamilial clustering, family history of parental gastric disease, and person-to-person contact through oral-oral or fecal-oral contamination may be the route of transmission [21].

H. pylori can be associated with Extra gastric diseases such as cardiovascular diseases, Hashimotos thyroiditis, Dyslipidemia, Diabetes mellitus, Reproductive Disorders[19].

Bacteria ,viruses and parasites emerge as the "secret agents" that cause millions of cases of cancer, It is estimated that over 1.5 million of the total of 10 million new cancer cases a year could be avoided through preventing the infection associated with them according to the report of WHO. Approximately 6.6 million people died from all types of cancer 1995 year. Three main types of cancers are associated to infections ,the first of which is Stomach cancer. Approximately the are 550 000 new cases a year of stomach cancer - about 55% of the worldwide total – which are attributable to Helicobacter pylori. The bacterium also causes gastritis and duodenal and gastric ulcers [8].

Some chronic infections are considered risk factors for cancer and they have Important relevance in low- and middle-income countries. In 2012 ,about 15% of diagnosed cancers were attributed to carcinogenic infections, including Helicobacter pylori, Hepatitis B virus, Hepatitis C virus, Human papillomavirus (HPV), and Epstein-Barr virus [7].

II. METHODOLOGY

The study aims to assess the complication of H. pylori in Kut City.

The Study Design

A descriptive study design was used for the purpose of the study for the period of December 1st 2018 to April 1st 2019.

Setting of the Study

The study has been carried out in Kut City at the AL-Zahraa Hospital.

The Study Sample

Non Probability A convenience sample of (100) patients collected through the admission in hospital and diagnosed with H. pylori.

Approach of Statistic:

The information of the study are analyzed during the used of the Statistical Package for the Social Sciences it called (SPSS -version 20). The information of statistical analysis approaches are used in arrange to analyze and estimate the consequences of the study:

Statistical tables "Frequencies and percent" which are:

$$\% = \frac{\boldsymbol{Frequency}}{\boldsymbol{Sample\ Size}}\ x100$$

III. RESULTS

Table: Distribution the Laparoscopic examination Complications of H. Pylori Bacteria

Classifications		Frequency	Percent
Complications	Gastritis	55	55.0
	Duodenitis	25	25.0
	Gastric ulcer	5	5.0
	Duodenal ulcer	14	14.0
	Gastric cancer	1	1.0
	Total	100	100

This table demonstrates the patients with H. pylori bacteria their complications in terms of frequencies and percentage. Findings reveal that the gastritis is the most complications associated with H. pylori bacteria infection, it constituted that (55%) out of the total number of the study sample. Only a small ratio (1%) of gastric cancer is associated with H. pylori bacteria infection.

IV. DISCUSSION

Findings reveal that the gastritis is the most complications associated with H. pylori bacteria infection, it constituted that (55%) out of the total number of the study sample. Only a small ratio (1%) of gastric cancer is associated with H. pylori bacteria infection.

The results come in line with investigation who have studied H. pylori infection among adults undergoing gastrointestinal endoscopy. (40) patients referred to the GIT clinic of AL-Yarmok teaching hospital for GI endoscopy are involved in their study; the biopsies and sera are sent to histopathology and immunology department respectively for the detection of H. Pylori. The findings reveal that most of study participants are with are chronic gastritis and complaining from reflux oesophagitis [13].

Also, a study entitled Helicobacter pylori chronic gastritis has updated Sydney grading in relation to endoscopic findings and H. pylori IGg antibody: diagnostic methods. The Endoscopic findings reveal that the (76.4%) of patients are suffer from Endoscopic gastritis [11].

V. CONCLUSIONS

The patients who admission to hospital and who diagnosed with H. pillory have been Gastritis.

Gastritis cases are the most common complications of patients with H. pylori, and small ratio of gastric cancer is associated with H. pylori bacteria infection.

VI. RECOMMENDATION

Further studies that can be conducted to involve a national level to identify the causes and risks factors of H. pylori in rural and urban areas.

ACKNOWLEDGEMENT

I would like to praise Allah (the Great and Almighty) who enabled me to fulfill this project. Thanks to Hospital Administration to facilitate the task of data collection. And I wish like thanks and appreciation to the decision-makers and those who take the recommendations of our search to solve the problems of our beloved country. I also thank those who see this phenomenon.

REFERENCES

1. Aguemon, D.; Struelens, M.; Massougbodji, A. and Ouendo, E.: Prevalence and risk-factors for Helicobacter pylori infection in urban and rural Beninese populations. *Clinical Microbiology and Infection*, 2005, 11(8), p.p. 10.1111.
2. Rabab, A. and Ala, H.: Multiple antibiotic resistance in Helicobacter pylori bacteria Isolated from gastric and duodenal ulcer. *Journal of Applied Drainage Sciences*, 2013, 2013, 6(21), p.p. 2050-2057.
3. Khan, S.; Fathima, P.; Musharraf, H.; Mohd, J. and Sujata, J.: Helicobacter pylori Infection and Associated Risk Factors in Patients with Upper Gastrointestinal Symptoms. *International Archives of Bio-Medical and Clinical Research*, 2017, 3(1), p.p. 40-45.

4. Nurinnisa, O.; Nezahat, K.; Fatma, B.; Nurcan, K.; Mahya, S.; Nuri, B. and Ebubekir, B.: Serum Zinc, Copper, Magnesium and Selenium Levels in Children with Helicobacter Pylori Infection. *Eurasian Journal Medicine*, 2015, 4(7), p.p. 126-9.
5. Rana, M.: Risk Factors Associated with Helicobacter pylori Infection in Gaza, Palestine. Submitted in Partial Fulfillment for the Master Degree of Science in Biological Science-Medical Technology, 2007, p. 2.
6. Moayyedi, P.; Axon, A.; Feltbower, R.; Duffett, S.; Crocombe, W.; Braunholtz, D.; Richards, I.; Dowell, A. and Forman, D.: Relation of adult lifestyle and socioeconomic factors to the prevalence of Helicobacter pylori infection. *International Journal of Epidemiology*, 2007, 31(3), p.p. 624-31.
7. Maria, R.; Adenielson, V.; Amanda, A. and Luisa, C.: Role of Helicobacter pylori infection and lifestyle habits in the development of gastro duodenal diseases in a population from the Brazilian Amazon. *Journal Arquivos De Gastroenterologia*. 2013, 50(3), p.p. 0004-2803.
8. Huan-Lin, C.; Ming-Jen, C.; Chuan-Shihcde, H.; Yuan-Wangcde, I. and Tsung-Linabc, M.: Socioeconomic status, personal habits, and prevalence of Helicobacter pylori infection in the inhabitants of Lanyu. *Journal of the Formosan Medical Association*, 2014, 113(5), p.p. 278-283.
9. Odete, A.; Isabel, F.; Nelio, V.; Carlos, P.; Claudia, C.; Paula, N. and Daniel, S.: Living Conditions and Helicobacter pylori in Adults. *Bio-Med Research International*, 2017, p.p. 908-2716. Available at: https://doi.org/10.1155/2017/9082716
10. Morris, L.; Terry, L.; Thomas, J.; Yun-Sheng, C.; Y.; Z. and Mitchell, H.: Helicobacter pylori infection in rural China: demographic, lifestyle and environmental factors. *International Journal of Epidemiology*, 2002, 31(3), p.p. 638–645.
11. Ameri, G. and Alkadasi, M.: The prevalence of Helicobacter pylori and risk factors infection associated in Taiz city, Yemen. *International Journal of Current Microbiology and Applied Sciences*, 2013, 2(8), p.p. 226-233.
12. Khawaja, S.; Basheer, M.; Janak, D.; Aleem, A.; Santosh, K. and Mohammed, A.: A study on the transmission of helicobacter pylori from food prepared and consumed under hygienic and unhygienic conditions: A first study using biopsy samples. *Scientific Research*, 2014, 6(4), p.p. 43062,10.
13. Zhang, W.; Wu, X.; Niu, J.; Yan, H.; Wang, X.; Yin, X. and Pang, Y.: Serum zinc status and Helicobacter pylori infection in gastric disease patients. *Asian Pacific of Cancer Prevention*, 2012, 13(10), p.p. 5043-6.
14. Sheikhian, A.; Ataherian, S.; Delfan, M.; Ebrahimzadeh, F. and Pournia, Y.: Prevalence and Risk Factors of Helicobacter Pylori Infection among Health Center Referrals in Khorramabad (West of Iran). *Asian Journal of Epidemiology*, 2011, 4(1), p.p. 1-8.
15. Tayfun, Y.; Dilke, A.; Selen, S. and Oya, Y.: The Prevalence of Helicobacter Pylori and Related Factors among University Students in Turkey. *Japanese Journal of Infectious Diseases*, 2008, 61(17), p.p. 179-183.
16. Akushe, T.; Richard, H.; Edwin, K.; Richard, K.; Kofi, N. and Kumar, R.: Epidemiology of Helicobacter pylori infection in dyspeptic Ghanaian patients. *Pan African Medical Journal*, 2015, p.p. 20:178. available at: http://www.panafrican-med-journal.com/content/article/20/178/full/
17. Abdelrazak, A.; Ayman, M. and Mahmoud, M.: Helicobacter Pylori Infection and Its Potential Role in Childhood Eczema. *Bacteriology and Virology Research*, 2015, 1(1), p.p. 1-12.
18. Leen, K. and Nahla, G.: H. Pylori Infection Among Adults Undergoing Gastrointestinal Endoscopy. *The Iraqi Postgraduate Medical Journal*. 2017, 6(1), p.p. 37-40.
19. Taha, M.; Samia. I.; Ibrahim, H.; Al-Zahrani, b.; Fadi, I.; Alanazi, C.; Malek, G. and Alotibi, D.: Helicobacter pylori chronic gastritis updated Sydney grading in relation to endoscopic findings and H. pylori IGg antibody: diagnostic methods. *Journal of Microscopy and Ultra structure*, 2016, p.p. 167–174.
20. Jaber, M.: Helicobacter pylori seropositivity in children with chronic disease in Jeddah, Saudi Arabia. *The Saudi Journal of Gastroenterology*, 2018, 2(8), p.p. 37.238.236.92.
21. Telmesani, A.: Helicobacter Pylori: Prevalence and Relationship with Abdominal Pain in School Children in Makkah City, Western Saudi Arabia. *The Saudi Journal of Gastroenterology*, 2018, p.p. 37.238.236.92. Available at: http://www.saudijgastro.com on Thursday.