SciMedCentral

Journal of Family Medicine & Community Health

Research Article

Diet and Lifestyle Factors and the Risk of H.Pylori Infection in Omani Patients Attending SQUH Daycare for OGD

Salma Rashid Altheeb AlKalbani*, FathiyaThabit Naser Al-Shariqi Mustafa Al-Hinai and Abdullah AlMuniri

FAMCO department, Sultan Qaboos University hospital (SQUH), Oman

***Corresponding author**

Salma Rashid Altheeb AlKalbani, FAMCO department, Sultan Qaboos University hospital (SQUH), Oman Medical Specialty Board (OMSB), Oman, Tel: 96670504; Email: s_alkalbani@yahoo.com

Submitted: 08 February 2016

Accepted: 26 April 2016

Published: 28 April 2016

ISSN: 2379-0547

Keywords

- *H. pylori*
- Dyspepsia diet
- Life style

Abstract

Objective: To assess the correlation between diet and lifestyle factors and the risk of H.pylori infection in Omani patient attending Sultan Qaboos University hospital (SQUH) with chief complaint of dyspepsia.

Method: This was a pilot cross sectional study of 100 patients attending SQUH daycare for OGD between September 2012 and September 2013. Ethical approval was obtained from SQUH scientific comity. Biopsy was taken in order to test for *H. pylori* infection. Data was collected in questionnaire including 107 food items with lifestyle factors (called food frequency questionnaire). Ten items were selected randomly and studied them in relation to *H. pylori* infection.

Result: Forty one percent (41%) have a positive test for *H. pylori* with no difference between two genders. Most of the patients were less than 60 years of age with income less than 500 Omani Rial but P value was not significant. No clear correlation between the total daily carbohydrates, fats or proteins intake and the risk of *H. pylori* infection. Seventy one percent (71%) of Patients who take soft drink on daily basis or almost daily basis have positive *H. pylori* result (P value 0.04). No significant correlation found between *H. pylori* and other food items studied.

Conclusion: The study showed that there is a strong correlation between the frequency of soft drink intake and the risk of *H. pylori* infection. However, no clear correlation was found between the total calories intake and *H. pylori* infection. No clear correlation was found between the *H. pylori* infection and smoking and drinking alcohol. Further studies need to be done with larger sample size to find out if there is clear correlation between *H. pylori* and diet and lifestyle.

INTRODUCTION

Helicobacter pylorus is a gram-negative microaerophilic bacterium colonizes and grows in human gastric epithelial tissue and mucus. It can lead to development of chronic gastritis and formation of gastric and duodenal ulcers. In 1994 *H. pylori* consider as a pre-carcinogenic to stomach cancer [1]. The main route of transmission is by feco-oral route but it is not clear if specific foods can increase the risk of *H. pylori* infection or not.

In Oman, we don't have enough data on the prevalence of *H. Pylori* infection. In addition, stomach cancer is considered the commonest cancer in males and the fifth top cancer in females in Oman. A study in Sultan Qaboos University hospital showed that the seropositivity of *H. pylori* is moderately higher between ages of 21 to 30 more than any other age group. Another study done in same hospital found that *H. pylori* are positive in 37% of patient who were diagnosed to have chronic gastritis and 78% in active chronic gastritis, adenocarcinoma and gastric ulcer.

Over the world, there are no much studies about the diet and the risk of *H. Pylori*. A study In Pero, Lima showed that the prevalence of *H. pylori* infection was increased with increased consumption of food from street vendors [2]. For those who were not consuming the fast food, the risk related to decreased consumption of fruits. In another study in China, they found that the prevalence of *H. Pylori* of male and female was 61.96% and 62.07%, respectively, demonstrating no significant difference between sexes (P=.9209). *H. pylori* infection significantly increased for subjects who ate cooked rice more than twice per day (65.05%), compared to those who ate it less than once

a week (41.86%, p = 0.0016). Furthermore, the prevalence of *H. pylori* infection was significantly higher in subjects who ate potatoes less than once per week (67.57%) compared to those who ate potatoes more than twice per day (52.58%, p = 0.0005). In another study in China in area with high prevalence of gastric cancer (Yangzhong City), they found that the prevalence of *H. Pylori* was increased among those who eat kipper food. Diet can be related directly or indirectly to the *H. pylori* infection [3].

This study was done in order to find out if there is any correlation between diet and other risk factors and *H. Pylori* infection.

METHODS

We conducted prospective cross sectional study based on questionnaire at day care unit at Sultan Qaboos University (SQUH), Muscat, Sultanate of Oman from period of January 2012 to December 2012. The study was approved by ethics committee of SQUH. The inclusion criteria were all Omani patient aged more than 18 years from both genders who presented for first time with dyspepsia for OGD.

The OGD was done for each patient in order to test for *H. pylori* by using biopsy technique which is considered highly sensitive and specific compared to other tests available. The exclusion criteria were non Omani patients, patient younger than 18, patient with stomach cancer and those who presented for follow up OGD. A written consent was obtained from each patient before enrolling in the study. The total number of patient studied was 100 patients. The data were collected based on demographic and dietary intake using a food frequency questionnaire (FFQ) that contains 117 items from different food group including Omani dishes. For each food item, a portion size was specified using common household serving unit/itensils (eg: table spoon, tea spoon, cup 180 ml and cup 240 ml). Several food groups were studied including traditional Omani dishes in order to look for any correlation between the food we are consuming and risk of *H. pylori* infection. We also choose 10 items from the 117 items randomly and studied separately in relation to *H. pylori* infection. A written informed consent was also obtained from the patients before starting the questionnaire. The patients were asked to complete the questionnaire in personal interview before entering the OGD room. The questionnaires were conducted by one trained assistant researcher in order to minimize the collection bias. The information taken from FFQ was summarized in to several nutrient and food groups. Estimate of total daily intake of energy, protein, carbohydrate and fat were calculated from nutrient estimates assigned to each dietary item using computer based nutrient analysis program (nutria Base 6.0). The chemical compositing of traditional Omani dishes were determined from either our own laboratory data or from already published literature.

RESULT

Hundred patients were enrolled in our study with almost equal gender distribution (female 55 and male 45). Forty one percent (41%) of patients were tested positive for H. pylori. Seventy six patients were less than 60 years of age and 32 of them are positive for H. pylori. About 53.8% of our patients have an income of less than 500 Omani Rial (P value) [4]. The study shows no clear correlation between smoking and drinking alcohol and *H.*

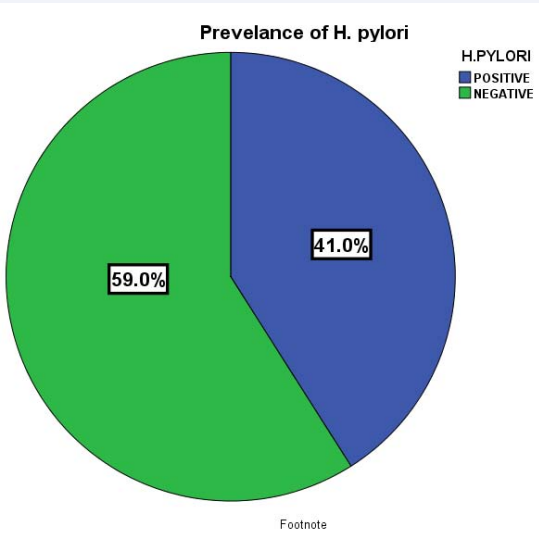

Figure 1 Prevalence of *H. pylori*.

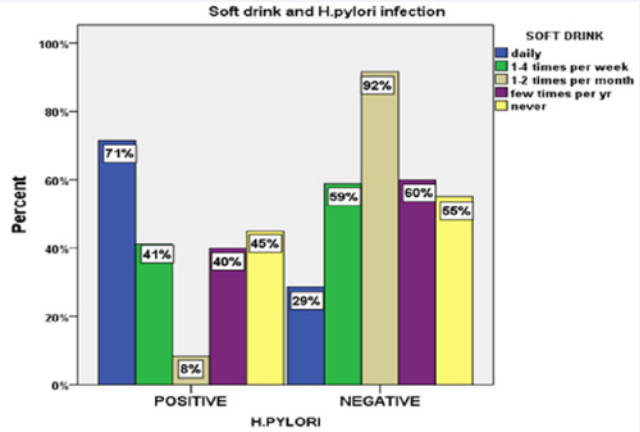

Figure 2 Relation between soft drink and *H. pylori* infection.

Table 1: Total fat intake in grams per day and *H. pylori* infection.

	Fat category in grams			
H. pylori	<65.00gm	65.00-80.00gm	>80.00gm	Total
Positive	38.2%	38.1 %	44.4%	41%
Negative	61.8%	61.9%	55.6%	59%

Table 2: Total carbohydrate intake in grams per day and *H. pylori* infection.

	Carbohydrate category in grams			
H. pylori	<65.00gm	65.00-80.00gm	>80.00gm	Total
Positive	47.6%	36.7%	40.8%	41.0%
Negative	52.4%	63.3%	59.2%	59.0%

Pylori infection. This could be because of small number of patient enrolled in this study. From those who tested positive, 41.5 % were found to have high protein intake of more than 90 g/day and 44.4% were found to have high total fat intake of more than 80 g/day with p value. Twenty patients out of 41 who test positive for

Table 3: Total protein intake in grams per day and *H. pylori* infection.

	Protein category in grams			
H. pylori	<65.00gm	65.00-80.00gm	>80.00gm	Total
Positive	42.9%	38.1%	41.5%	41.0%
Negative	57.1%	61.9%	58.5%	59.0%

H. pylori were found to have total daily intake of carbohydrate of more than 350 g. Ten items were studied separately and the risks of *H. pylori* infection were correlated to the frequency of intake from each item. There was no clear correlation between the intake of fish, milk, chicken, rekhal (special Omani bread), beans, Omani coffee or fast food and increase risk of *H. pylori* infection. About 71.4% of those who test positive are taking soft drink on daily or almost daily basis (>5 times/week) with P value of 0.04.

DISCUSSION

There is no enough data about the prevalence of *H. pylori* in Oman .The importance of this organism coming from the fact that it is carcinogenic for the stomach cancer which is the top cancer in Omani male patient and fifth cancer in Omani female patient [5]. The data showed that H pylori infection is more common in developing countries and related more too poor socioeconomic status. It was found that it is related to increase consumption of fast food and decrease intake of fruits and vegetables. No studies were conducting in relation with total intake of protein, fats and carbohydrate and the risk of *H. pylori* infection, instead separate food items were studied in order to find this relation.

The study showed that prevalence of *H. pylori* was 41% which is almost comparable to the global statistics in developing countries. The prevalence was almost equal in both gender (45% in males and 55% in females). Furthermore, most of our patients have an income of less than 500 Omani Rials which is comparable to other studies published (53.8% in *H. pylori* infected patient). However, the study didn't showed any significant correlation between *H. pylori* and other life style factors (eg: smoking, alcohol, occupation and physical activity) which we can contribute it to low sample size studied in this pilot study. This study did not show any clear correlation between the total daily intake of proteins, fats and carbohydrate and increase risk of H. pylroi infection which we can also contribute it to the same reason mentioned earlier. In addition, we studied 10 items separately (rice, beans, Omani coffee, dates, high fat milk, chicken, Omani bread, fast food and soft drinks) [6]. The previous studies showed that there could be a correlation between *H. pylori* infection and consumption of rice and fast food which is not shown in our studies. The only significant result was found with soft drinks. Seventy one percent of patient infected with *H. pylori* were drinking soft drink (P value 0.04).

This study has many limitations. First, the sample size studied was too small to decide on the correlation between different food items and other risk factors in relation to *H. pylori* infection. Bigger sample size is needed to find out this correlation. Second, the study involved one center (which is considered tertiary hospital) that might not represent the actual figure of *H. pylori* in compare if we conduct this study in primary health care and using other method of diagnosing *H. pylori* rather than endoscopy [7]. In addition, the patient presented to OGD were selected based on symptoms severity from hundreds of patient who present with dyspepsia and decided for OGD which may create selection bias. Third, there might be some confounders which need to be controlled in studying each food items so that we can conclude that the result is because of that food items specifically. Fourth, the type of questionnaire used was too long and time consuming for the investigator and for the patients as well. Modification of the questionnaire or using simpler questionnaire may be more convenience. However, this study can be used as pilot study for further research in this field.

CONCLUSION

This study showed that *H. pylori* infection is more prevalent in those who are consuming soft drink in almost daily bases. However these studies failed to show any clear correlation between *H. pylori* infection and other lifestyle factors and dietary factors. Larger sample size needs to be studied to end up with clear correlation between diet and life style factors and risk of *H. pylori* infection. Diet modification a major role in *H. pylori* prevention.

ACKNOWLEDGMENT

We thank all patients who participate in this study, the day care SQUH staff and our research assistant (Mrs Mahdiya Al-Karousi).

REFERENCES

1. Y. T. van Duynhoven and R. de JongeTransmission of Helicobacter pylori: a role for food? Bull World Health Organ. 2001; 79: 455–460.
2. Begue RE, Gonzales JL, Correa-Gracian H, Tang SC. Dietary risk factors associated with the transmission of Helicobacter pylori in Lima, Peru. Am J Trop Med Hyg. 1998; 59: 637-640.
3. Shi R, Xu S, Zhang H, Ding Y, Sun G, Huang X, Chen X. Prevalence and risk factors for Helicobacter pylori infection in Chinese populations. Helicobacter. 2008; 13: 157-165.
4. Yangchun Zhu, Xiaoying Zhou, Junbei Wu, Jing Su, and Guoxin Zhang. Risk Factors and Prevalence of Helicobacter pylori Infection in Persistent High Incidence Area of Gastric Carcinoma in Yangzhong City. Gastroenterology Research and Practice. 2014; 481365: 10.
5. Al-Mahroqui Hitam. The epidemelogy of stomach cancer in Oman, 2010.
6. Nasar Y Alwahaibi, Badria M Almahrooqi, Samirah A Alrawahi. Prevelance of H.pylori and gastritis in Oman. Journal of Digestive endoscopy. 2013; 4: 29-32
7. Mohammed Said Al-Balushi, Juma Z Al-Busaidi, Muna S Al-Daihani, Mohammed O Shafeeq, Sidgi S Hasson. Sero-prevalence of Helicobacter pylori infection among asymptomatic healthy Omani blood donors. Asian Pac J Trop Dis. 2013; 3: 146–149.

Cite this article

Altheeb AlKalbani SR, Naser Al-Shariqi FT, Al-Hinai M, AlMuniri A (2016) Diet and Lifestyle Factors and the Risk of H.Pylori Infection in Omani Patients Attending SQUH Daycare for OGD. J Family Med Community Health 3(2): 1077.