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

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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 Peru, 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 (52.56%, 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 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. 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...
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 to 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 conducted in relation with total intake of protein, fats and carbohydrate and the risk of *H. pylori* infection. There is no enough data about the prevalence 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.

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

<table>
<thead>
<tr>
<th>Protein category in grams</th>
<th>H. pylori</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;65.00 gm</td>
<td>42.9%</td>
<td></td>
</tr>
<tr>
<td>65.00-80.00 gm</td>
<td>38.1%</td>
<td></td>
</tr>
<tr>
<td>&gt;80.00 gm</td>
<td>41.5%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>41.0%</td>
<td></td>
</tr>
</tbody>
</table>

*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.

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.

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REFERENCES


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