

Nutritional Status and Dietary Habit of Peptic Ulcer Patients

S.M. Mustafizur Rahman¹, Afsar Uddin Ahmed¹, Saiful Huque¹, Mahmud Hasan² and Sheikh Nazrul Islam¹*

¹Institute of Nutrition and Food Science, University of Dhaka, Bangladesh

²Department of Gastroenterology, Bangabandhu Medical University, Dhaka-1000, Bangladesh

Abstract

A total of eightyfive patients with endoscopically proven symptoms of peptic ulcer were investigated to find their socioeconomic condition, dietary and smoking habits and nutritional status. Most of the patients (70.5%) were school educated. Prevalence of peptic ulcer was found highest in service holders (27%) and lowest in labours (6%). Low income, young adults and male patient were shown to have high incidence of peptic ulcer. In dietary habit, rice and vegetables were taken by 100% of the patients. Plant protein was consumed by 75% and animal proteins by 39-67% of the patients. Fifty four percent of patients were found to have a habit of smoking cigarettes. Nutritional status of the peptic ulcer patients was found rational.

Introduction

Health and nutritional problem continues to be of increasing concern worldwide. Health profile of a community is greatly influenced by its nutritional status and life style. Likely, peptic ulcer is a frequently encountered public health problem. It is a common disease in many parts of Asia. It inflicts one in ten persons and still causes death to a significant number of people every year^{1,2}. It is a chronic relapsing disorder characterized by deep ulceration in the stomach or duodenum or both. It is the most common disease of upper gastrointestinal system¹. Little is known about its aetiological factors. The precise reason for the development of this complication is yet to be ascertained. Though a single factor responsible for gastritis or ulceration could not be identified, a number of factors have been found to influence its development, persistence, relapse or recurrence^{3,4}, of which infection of *Helicobacter pylori* is reported to be one of the major causes of gastritis and peptic ulcer⁵⁻⁷. It is indicated that dietary habit is

Bangladesh Journal of Nutrition, Vol. 12, Nos. 1 & 2, December 1999. Institute of Nutrition and Food Science, University of Dhaka, Bangladesh.

* Author for Correspondence

almost certainly involved in the development of peptic ulcer². Use of non-steroidal anti-inflammatory drugs is also contributed to development of peptic ulcer^{8,9}. The present study was attempted to assess the socio-economic condition, dietary practice, smoking habit and nutritional status of the peptic ulcer patients.

Materials and Methods

It was a cross sectional study. Patients attending the endoscopic unit of BSMMU (Bangabandhu Sheik Mujib Medical University) were investigated. They were selected randomly. Socioeconomic characteristics included education, occupation, income, age, sex etc. Dietary habit was recorded by Pao and Cypel (1996) method¹⁰. Nutritional status was determined by anthropometric data¹¹ and haemoglobin level by Cyanmethemoglobin method¹². Twenty seven socioeconomic matched control subjects (patient's attendants) were taken for anthropometric indices.

A structured questionnaire was prepared considering all of the above variables. It was pretested and duly modified. Socioeconomic indices and dietary habit were collected by interviewing the patients and also of the patient's attendants. Data analyses were done using SPSS software package. Appropriate statistical test were done accordingly.

Results

Nearly 90% of the peptic ulcer patients were literate, of which 70.5% were school educated and about 20% were college and higher educated people (Table 1). Service holders were found highest sufferer from this disease (31.8%), which was followed by businessmen (25.9%), and students (20%). Least suffering group was labours (about 6%). Adults, male and low income people were found to have high incidence of peptic ulcer (Table 1).

Table 1. Socioeconomic indices of peptic ulcer patients (n=85).

Socioeconomic indices	Patients	
	Number	Percent
Education		
Literate	09	10.6
Illiterate	76	89.6
Class I-V	34	40.0
VI-X	26	30.5
XI & above	16	18.9
Occupation		
Student	17	20.0
Service	27	31.8
Business	22	25.9
Labour	05	05.9
House wife	06	07.0
Others	08	09.4
Income in Taka		
1000-3000	31	36.5
3000-5000	29	34.1
> 5000	25	29.4
Age in year		
Male (n=70)	70	82.4
18-30	40	47.1
31-40	13	15.3
41-50	17	20.0
Female (n=15)	15	17.6
25-35	11	12.9
36-45	04	4.7

It was found that rice and vegetables were taken by 100% of the patients, while only 5% took fruits (Table 2). Animal proteins (fish, meat, egg) were consumed by around 46-79% of the patients, of which fish was taken by the highest number (79%). Plant protein (mainly pulse) was taken by 88.2% of the patients. Only 4% patients took milk or milk products. Fifty four percent was have a habit of smoking cigarettes. Tea was drunk by 82.2% of the patients.

Table 2. Dietary intake and smoking habit of peptic ulcer patients (n=85).

Dietary and smoking habit	Patients			
	Taking		Not taking	
	Number	Percent	Number	Percent
Rice	85	100	00	00
Bread	52	6.5	33	38.8
Vegetables	85	100	00	00
Fruit	05	05.9	80	94.1
Fish	67	78.8	18	21.2
Meat	39	45.9	46	54.1
Egg	43	50.6	42	49.4
Milk	04	04.7	81	95.3
Pulse	75	88.2	10	11.8
Smoking Cigarette	46	54.0	39	46.0
Drinking tea	70	82.4	15	17.6

In anthropometry, only skin fold thickness was indicated significantly less than that of the control subjects ($P < 0.05$) (Table 3). Haemoglobin level and BMI of the peptic ulcer patients were observed within normal range (Table 4, 5). Difference in haemoglobin content between patients and control subjects were also found significant ($P < 0.05$). However, change in BMI and other anthropometric indices were shown insignificant ($P > 0.05$).

Table 3. Anthropometric characteristics of peptic ulcer patients and control subjects.

Characteristic	Patients (n=85)	Control (n=27)	Comment
	Mean±SD	Mean±SD	
Male (p=70, c=17)			
Height (cm)	162.4±7.3	165.6 ± 2.7	t=1.760, P>0.05
Weight	54.7±8.5	53.5±7.5	t= 0.528, P>0.05
MUAC (cm)	25.0±2.7	26.0±2.4	t=1.385, P>0.05
SFT (mm)	05.7±0.9	06.2±0.4	t=2.215, P<0.05
Female (p=15, c=10)			
Height (cm)	152.3±6.5	156.3±1.5	t=1.830, P>0.05
Weight	45.7±7.2	49.7±5.3	t=1.444, P>0.05
MUAC (cm)	21.3±2.4	23.5±3.3	t=1.849, P>0.05
SFT (mm)	08.5±0.7	12.5±0.9	t=11.95, P<0.05

Table 4. Haemoglobin level of peptic ulcer patients and control subjects.

Haemoglobin level	Patients (n=85)	Control (n=27)	Comment
	Mean±SD	Mean±SD	
Male	67.5±8.7	86.5±6.7	t=8.333, P<0.05
Female	65.0±7.8	74.0±5.9	t=2.978, P<0.05

Table 5. Body mass index (BMI) of peptic ulcer patients and control subject.

Subject	Patients (n=85)	Control (n=27)	Comment
	Mean±SD	Mean±SD	
Male	20.7±3.4	21.6±2.6	t=1.01, P>0.05
Female	19.7±2.5	20.3±3.7	t=0.464, P>0.05

Discussion

In the present study, socioeconomic characteristics showed that the literate, servicemen and low income group of people were found to have high incidence of peptic ulcer. The precise reason behind this affliction is clear, but one of the factors may be due to mental stress, which results in acid secretion². Unlike the literate or servicemen, illiterate and labours, who are relatively in less mental stress, were observed to have lowest incidence of this disease. Male adults were found mostly affected by peptic ulcer, and it is in agreement with the epidemiological reports of this disease^{1,13}. Female and the two extreme age groups were not as affected as that of the male or young adults, which may be because of their lesser mental stress as they depend on male and adults.

It is believed that peptic ulcer is related to dietary habit. This leads to give diet therapy for the disease throughout the 20th century¹⁴. Regular intake of fresh green yellow fruits and vegetables, which contain a wide range of antioxidant micronutrients, prevent or reduce the incidence of many fatal disease like cardiac complication, cancers etc.¹⁵⁻¹⁸. It was found in the present study that the 100% peptic ulcer patients took vegetables while the only 5% took fruits. Although, there is no sound data to suggest that fruits and vegetables would help in prevention or reduction of the incidence of peptic ulcer, high intake of vegetables would reduce the risk of this disease^{18,19}. However, on the contrary it is also reported that high fruit intake is possibly an associated risk factor for peptic ulcer²⁰.

In the present work, animal protein (fish, meat, egg) was consumed by about 46-79% of the patients, of which fish was taken by highest number of patients. More than 88% of the patient took plant protein. A good number of patients took meat, which increases the risk of many fatal diseases^{17,21}. Though, plant protein and fish are healthy food, their role in peptic ulcer is not clear. Above 50% of the patient took eggs and 95% did not take any milk, both of which are claimed to act as buffer on gastric acid, but contrary opinion for milk is also reported¹⁴.

Life style increases the risk of many disease^{17,18,21}. Change in life style and diet habit are of prime importance in treating the peptic ulcer, especially in young adults. In the present study, most of the patients were observed to have a habit of smoking cigarettes and drinking tea. Cigarette smoking increases the risk of peptic ulcer; therefore, stop smoking speeds up the healing of ulcers^{1,22}. It is reported that coffee and alcoholic drinks stimulate acid secretion, but dietary restriction of these drinks do not have proven benefit, even some studies suggest that moderate intake of alcohol may promote ulcer healing². It is claimed that green tea probably reduces the risk of some cancers, but simple tea does not have any association¹⁷. However, caffeine and nicotine present in tea and tobacco stimulate vagus nerve to secrete acid in the stomach, which consequently promotes ulceration. BMI of the peptic ulcer patients were within the normal range²³.

In conclusion, it is indicated that the socioeconomic factors, individual life style and dietary habit greatly influence health and nutritional status. Nutritional status of peptic ulcer patients is found rational. They intake nutritive foods, which usually do not have any influence on peptic ulcer incidence. High percentage of peptic ulcer patients have a habit of smoking cigarettes and drinking tea, both of which have a definite role in the occurrence and promotion of peptic ulcer. However, to have a more accurate picture, a longitudinal study with a large number of patients is required.

References

1. Linda LH, Freston JW. Diseases : Manifestations and pathophysiological. In : Osol A, eds. Remington's Pharmaceutical Sciences. Easton Pennsylvania, Mack Publishing Company, 1980 : 615-655.
2. Cumming S JH. Nutritional management of diseases of the stomach and bowel. In : Garrow JS, James, WPT, eds. Human nutrition and dietetics. New York, Churchill Livingstone, 1994 : 480-506.
3. Graham DY. *Compylobactor pylori* and peptic ulcer disease. *Gastroenterol* 1989; 96 : 615-625.

4. Boyed W, Gledhill T, Leicester RJ, and Addis B. Epidemic hypochlorhydria. *Br. Med. J.* 1985; 290 : 1383-1386.
5. Patchett S, Beattie S, Leen F, Keane C and O'Mortain C. *Helicobacter pylori* and duodenal ulcer recurrence. *Am. J. Gastroenterol.* 1992; 87 : 24-27.
6. Loo VG, Sherman P and Marlow A. *Helocobactor Pylori* infection in a pediatric population : In vitro suceptibilities to omeprazole and eight antimicrobial agents. *Antimicrob Agents Chemotherap.* 1992; 36 : 1136-1135.
7. Ahmed A, Rahman SMM, Islam SN and Hasan M. Prevalence of *Helicobacter pylori* infection in peptic ulcer. 1997; 6(2) : 155-159.
8. Kurata JH and Corboy ED. Current peptic ulcer time trends : an epidemiological profile. *J. Clin. Gastroenterol.* 1988; 10 : 259-268.
9. Kreiss C, Blum Al. Epidemiology and risk factors of gastroduodenal ulcer. *Chirurg.* 1996; 67(1) : 7-13.
10. Pao EM and Cypel YS. Estimation of dietary intake. In : Ziegler EE and Filer Jr. LJ. eds. *Present knowledge in nutrition 7th edition* ILSI Press Washigton DC. 1996; 498-507.
11. Physical status : The use and interpretation of anthropometry, WHO technical series 854; report of WHO expert committee WHO Geneva 1995; 362-364.
12. Van Kampen EJ and Zijistra WG *Clin Chin Ace* 1961, 6 : 538. International committee for standardization in Haematology 1967,. Recommendations for haemoglobinometry in human blood. *Brit J. Hema* 13 (suppl); 71.
13. Bernersen B, Johnsen R and Straume B. Non-ulcer dyspepsia and peptic ulcer : distribution in a population and their relation to risk factor. *Gut.* 1996; 38(6) : 822-825.
14. Meyer JH, The stomach and nutrition In : Shils ME, Olson JA, Skike M eds. *Modern nutrition in health and disease.* Philadelphia USA Lea & Febiger 1994; 1029-1035.
15. Diaz MN, Frei, B, Vita JA and Keaney Jr. JF. Mechanism of disease : Antioxidants and atherosclerotic heart disease. *N. Eng. J. Med.* 1997; 337 : 408-416.
16. Stephens NG, Parsons N, Schofeild PM, Kelly F, Cheeseman K and Mitchinson MJ. Randomised control trial of vitamin E in patient with coronary disease : Cambridge heart antioxidant study (CHAOS). *The Lancet* 1996; 347 : 781-786.
17. World Cancer Research Fund (WCRF). Stomach : Cancer nutrition and food. In : *Food, Nutrition and Prevention of Cancer : a global perspective.* NW Washinton American Institute for Cancer Research, 1997 : 292-338.

18. Hirayama T. Life style and Cancer : From epidemiological evidence to public behaviour change to mortality reduction of target cancers. Natl. Cancer Inst. Monogr. 1992; 12 : 65-74.
19. Nair P and Mayberry JF. Vegetarianism, dietary fibre and gastrointestinal diseases. Dig. Dis. 1994; 12(3) : 177-185.
20. Massarrat S, Saberi-Firoozi M, Soleimani A, Himmelmann GW, Hitzges M and Keshavars H. Peptic ulcer disease, irritable bowel syndrome and constipation. Eur. J. Gastroenterol. Hepatol. 1995; 7(5) : 427-433.
21. Mann J. Disease of heart and circulation : the role of dietary factors in aetiology and management. In : Garrow JS, James WPT. eds. Human nutrition and dietetics, New York, Churchill Livingstone, 1994 : 597-650.
22. Okada M, Yao T and Maeda K. Predictors of duodenal ulcer healing during treatment with cimetidine. Gut. 1990; 31 : 758-763.
23. James WPT and schofield EC. Appendix 2.2 Index to growth curves and Appendix 2.3 Growth curves providing weight and heights. In : James WPT and Schofield EC eds. Human energy requirement : A manual for planner and nutritionists, Oxford University Press, 1990 :118-123.