MODERNIZATION IN LIFESTYLE PATTERN INCREASES THE RISK OF GASTROESOPHAGEAL REFLUX DISEASE

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ABSTRACT
Objective: *The aim of this study was to assess the prevalence and to explore the risk factors of Gastroesophageal reflux disease in our eastern life style culture and compare it with western culture.*
Study Design: *Observational, Prospective study.*
Setting & Duration: *Baqai Medical University and Korangi Surgical Clinic from January 2005 to January 2009.*
Methodology: *A total of 600 patients were included in this study. All patients who present with symptoms of heartburn and epigastric discomfort were included in this observational study. A detailed questionnaire was designed to collect data including, life style changes such as physical exercise and walking habits, sources and quality of meals, detailed dietary habits and questions about smoking, obesity, psychological, family, and occupational stress, use of Aspirin or Nsaids and frequency of attacks and response of previous treatment. Finally results were analyzed from collected data.*
Results: *Out of 600 patients 312(52%) were male and 288(48%) were females. Patients were between the ages of 09-60years. Risk factors were different in different age groups. In children the predisposing factor were exhaustive daily routine life and exams tension .life style changes mainly affect young age group (59.8%). The most common causes were changes in dietary habits, and lack of physical exercise, while Smokers were 1.6%, and obese were 2.5% of the total. While in old age group causative factors were prolonged use of analgesics and psychological stress. High fiber diet was found to be effective in treatment along with medicines in all age groups.*
Conclusion: *Evidence from the present study suggests that avoidance of risk factors should be recommended as a primary prevention therapy of Gastroesophageal reflux disease.*

KEY WORDS: *Gastroesophageal Reflux Disease, Prevalence, Risk Factor, Lifestyle Changes, Modernization effect*

INTRODUCTION

Modernization in life style pattern produces marked global changes, which not only change our cultural behavior but also has direct impact on our health. Gastroesophageal reflux disease is one of the considerable health problem with increasing prevalence due to these life style changes. Approximately 17-38% of adults in the western population experienced heartburn and acid regurgitation at least once per week.[1] Gastroesophageal reflux disease accounts for at least 9 million patients visits to physicians in the United states each year and costs approximately 10 billion dollars annually.[2,3] During the last decades, the incidence of the cancer of esophagus has increased fivefold in Europe and the united states.[4] The presence of Gastroesophageal reflux disease may affect the patient's quality of life, decrease functional activity, increase the financial stress, and the risk of esophageal carcinoma in the case of Barrett's esophagus.[5] The history of the most common symptoms of Gastroesophageal reflux disease (heartburn and acid regurgitation) is usually sufficient to confirm the diagnosis of reflux and to permit proper treatment.[6] Although the etiology of Gastroesophageal reflux disease has not been fully elucidated, the role of exogenous and endogenous components seems to be the crucial in the development of the disease.[7] Therefore, it is important to identify the potential risk factors to prevent Gastroesophageal reflux disease. In the western culture obesity and genetic factors are the main endogenous factors while exogenous factors are related to life style pattern like, smoking, alcohol, coffee, tea, use of aspirin and non-steroidal

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anti inflammatory drugs, lack of physical exercise, have all been proposed to be risk factors for reflux.[8,9]

The aim of our study is to collect the detailed population based data to assess the prevalence and to explore the risk factors of reflux disease in our eastern life style culture and compare it with western culture.

METHODOLOGY

This study was conducted at Baqai Medical University Hospital and Korangi Surgical Clinic during the four year periods from January 2005 to January 2009. All patients who present with symptoms of heartburn and epigastric discomfort were included in this observational study. A detailed questionnaire was designed to collect data including age, sex, body weight, smoking, occupational load and duration of work timing. Besides collecting routine data special focus was on life style changes such as lack of physical exercise and walking habits, psychological burden, late dinner and immediate sleep, obesity, use of Pan, gutka, areca nuts and family history of Gastroesophageal reflux disease. Others information including detailed dietary history like, source of meal either from home or hotel, quality of meal, meal from different food centers or single place, timing of meal (regular or irregular), and eating at short intervals. Questions were included about presenting symptoms, recurrent attacks and response of previous treatment. Routine investigations including bloods CP, Urinalysis blood sugar were carried out in all patients. Antibody titre for helicobactor pylori was advised to those patients who were resistant to first line therapy. Majority of patients were underwent to upper GI endoscopy, which confirmed the diagnosis of Gastroesophageal reflux disease. These patients were treated with regular medicines and also advice to use high fiber diet in the form of ispaghol husk and assess the response of treatment. Finally the results were analyzed from collected data.

RESULTS

Out of the total 600 patients included in this observational study, there were 312 males (52%) and 288 females (48%). Ages were ranging from 9-65 years, the mean age being 30 years. Majority of patients were students, officer grade, and labors. This disease was found to equally involve the poor, medium and high profile families. Male and female were almost equally affected. Endoscopy was found to be investigation of choice to confirmed the diagnosis and to differentiate it from acid peptic disease. Most of the risk factors which have been observed in our culture were quite different from risk factors seen in western culture. Surprisingly, different causes have been observed in different age groups. The age and sex prevalence and causes of Gastroesophageal reflux in different age group is summarized in Table I.

The children were not exempted from the effects of modernization. 9 Children (1.5%) with Gastroesophageal reflux disease were recorded in our study. The factors found in School going children were exhaustive daily schedule life, home tuition, frequent examinations, frequent eating, and excessive use of fast food items. Most of the children usually present these symptoms during examination period, while they become normal once exams completed.

Maximum numbers of patients were belonging to young age group (59.8%) and they were mostly thin and lean built. The main etiological factors have been seen in this population was related to modernization in dietary habits. It was observed that 77% young populations were used to eat meals from different hotels daily, especially from low-priced and unhygienic cooked food shops. Oil used in these shops plays a major role in the pathogenesis of Gastroesophageal reflux disease. Other risk factors in these young populations were irregular timing of meal, inappropriate cooked meal and frequent eating. Another important factor has been observed that in our social gathering the dinner usually served late night and peoples sleep immediately once they reached home. Lack of physical exercise is another risk factor, not a single patient given a history of regular physical exercise, only few patients having walking habits. Adult was 28.3% of the total population. Obesity and smoking were the risk factors observed in this population. Obesity (2.5%) was commonly seen in females because of limi-

Table I. Age and Sex prevalence and risk factors of gastroesophageal reflux disease

Patient Group	Male	Female	Total	Percentage	Major Risk Factors
Children	2	7	9	1.5	Heavy daily routine, Exams tension
Youngs	206	153	359	59.8	Change in dietry habits
Adults	76	94	170	28.3	Obesity, Smoking, Lack of physical activity
Elders	28	34	64	10.3	Use of Medicines, Smoking, psychological stress

ted mobilization and they were belonging to adult age group. Most of these women were housewives while working women were young and thin built. As compare to obesity, smoking was seen in males but not identified as a major risk factor of reflux in our study. It has been observed in 1.6% of adult population. Elderly patients were only 10.3% of the total. In older age group the causes were prolonged use of analgesics, obesity, limited mobilization, family stress and fear related to death were the leading causes of Gastroesophageal reflux disease. Use of high fiber diet or ispaghol husk has been found to be effective in minimizing the symptoms of reflux.

DISCUSSION

Our study showed that modernization in life style equally affects our eastern population. Some of the risk factors were found different from western factors and they are mainly related to dietary habits.

In West, obesity is one of the major risk factor of Gastroesophageal reflux disease[10], while in this study there were only few obese patients (2.5%). All obese patients were females. Study of Georgios indicate that there was a strong correlation between BMI and the severity of Gastroesophageal reflux disease. They found that over weight and obese had significantly higher distal esophageal acid exposure time and decrease lower esophageal sphincter pressure.[6] This may suggest that a hormonal factor related to adiposity is more important in the pathogenesis of symptoms of reflux than are mechanical factors.[2] According to Nelson that this might be caused by increased estrogen activity in females, thereby suggesting that estrogens may play an important role in the etiology of reflux.[8]

Second difference was related to tobacco smoking. Our study showed that only few patients (1.6%) had smoking habits but these patients also have other risk factors for reflux as well. While smoking have been identified as strong risk factor of Gastroesophageal reflux disease in western population. Tonya suggested in his study that prolonged duration of smoking decrease the acid clearance time in esophagus and also decrease baseline lower esophageal sphincter pressure. Abstinence from smoking takes long time to recover from Gastroesophageal reflux disease.[9]

Lack of physical exercise is one of the major risk factor of Gastroesophageal reflux disease found in both eastern and western population. Sedentary workers or officers job confined to one room were more affected with Gastroesophageal reflux disease than those who have mobile job. This study is supported by other studies. According to Nilsson. physical exercise for at least 30 minutes duration once a week was associated with a significant (50%) decreased risk of reflux when compared with individuals who never did any organized physical exercise. The mechanism of this protective effect could be by strengthening the crural diaphragm; this possibly improving the function of the part of the antireflux barrier constituted by the straight muscle of the diaphragm crurae.[8] While study of Nocon, physical activity exceeding 2 hours per week positively associated with moderate and severe Gastroesophageal reflux disease symptoms.[11] Existing controversies regarding physical exercise may be a consequence of differences in age, race related to the population, evaluation of exercise short term versus long term, assessment of physical activity (mild, moderate or intense) and diagno-sis of disease.[12]

Lastly the change in dietary habits has been found to be a major risk factor of reflux disease in our culture. Common risk factors observed in many patients with Gastroesophageal reflux disease were meal from different hotels rather from home, frequent eating at short interval, use of meal from low-priced food shops, meal from hotel may be cooked unhygienically, rich in oil, cooked many times in same oil, oil derived from animal fat or other sources and use of old stored food. These factors have not been seen in western studies. Study of Serag et al indicate that high dietary fat intake, particularly saturated fat, was associated with an increased risk of reflux disease symptoms and erosive esophagitis and esophageal adenocarcinoma.[7] Another common factor seen in our society is late serving of dinner in different cultural parties and this is now fashion in our society to go on dinner after midnight and usually sleep soon after that. These factors produce prolonged relaxation of lower esophageal sphincter and increased esophageal acid exposure time.

One protective factor has been observed in our study that is regular use of high fiber diet or ispaghol husk, markedly reduces the symptoms of reflux. Many western studied also showed a Protective Role of dietary fiber in reflux disease. Studies described the biological action of fiber diet. In the acidic environment of the stomach large amounts of nitric oxide are produced from nitrites in the diet. This nitric oxide has a potent relaxing effect on the lower esophageal sphincter. Dietary fibres are well known to scavenge nitrites in the stomach. Therefore, it reduces the concentration of nitric oxide in the Gastroesophageal junction, and thus prevents reflux.[8]

In summary, Gastroesophageal reflux disease is common and a significant health problem in our society. Life style changes due to modernization especially change

in dietary habits and lack of physical exercise are the main risk factors for reflux.

CONCLUSION

Evidence from the present study suggests that avoidance of risk factors should be recommended as a primary prevention therapy of Gastroesophageal reflux disease.

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