Original Research Paper

Community Medicine

THE ROLE OF MODIFIABLE RISK FACTORS FOR PEPTIC ULCER DISEASE IN PATIENTS ATTENDING A TERTIARY HOSPITAL IN ENUGU, SOUTH EAST NIGERIA.

Onoh, L. U.M.

Department of Community Medicine and Primary Health Care, Enugu State University of science and Technology, Enugu, Nigeria.

ABSTRACT **Aim:** To determine the role of modifiable risk factors in the prevalence of Peptic ulcer disease (PUD)in patients attending a tertiary hospital (Enugu State University Teaching Hospital, GRA) in Enugu, South East Nigeria. **Method:** A total of 240 patients comprising 120cases (with PUD) and 120 controls (without PUD) were seen at the General Outpatient Department of the Enugu State University Teaching Hospital, GRA, Enugu between the period February and August 2017. Their basic information i.e. age and sex were taken. Lastly their life-style (modifiable risk factors) comprising their involvement in cigarette smoking, alcohol consumption, exposure to stressful conditions and consumption of hot and spicy foods were assessed. The prevalence of these modifiable risk factors in the cases and controls were compared. **Results:** There was no significant difference between the age distribution (P-value=0.103), the sex distribution (P-value =0.071) of cases and controls. Also there was no significant difference in cases and controls found in their habits of cigarette smoking (P-value= 0.267) and alcohol consumption (P-value= 0.606). However there were significant differences between the cases and controls found in their habits of exposure to stressful conditions (P-value=0.000) and consumption of hot and spicy foods (P-value=0.000). **Conclusion:** Some of the modifiable risk factors of the subjects like cigarette smoking and alcohol consumption were found not to play any significant role as risk factors in the prevalence of PUD whereas other factors like the exposure to stressful conditions and consumption of hot and spicy foods were significant as risk factors for PUD in patients of the Enugu State University Teaching Hospital.

INTRODUCTION:

Peptic Ulcer Disease (PUD) is a disorder of the upper gastrointestinal tract. Ulcers occur when the mucosal lining of the GI tract breaks down, resulting in acute or chronic inflammatory response.[1] Based on hospitalization rates, the most common form of PUD is gastric, or stomach ulcers.[2] The rate of PUD hospitalizations was found to be highest in adults > 65 years of age, Caucasians, and males.[2] The prevalence decreased with age.[2] PUD was once thought to be a result of emotional stress and diet.[3] In 2005, Australian researchers Dr. Barry Marshall and Dr. Robin Warren were awarded the Nobel Prize for their 1982 discovery of the Helicobacter pylori bacteria (H. pylori) and its role in peptic ulcer disease.[4] Considering there are half a million new cases reported each year in the United States, physicians have developed many different ways to assess, diagnose, and treat ulcer formation.[5]Any portion of the GI tract that comes into contact with gastric secretions is susceptible to ulcer development including the lower esophagus, stomach, duodenum, and margin of gastro-jejunal anastomosis after surgical procedures[6]. A peptic ulcer occurs when the stomach makes too much hydrochloric acid and there is a weakening in the protective lining of the stomach or duodenum[8]. H. pylori is a gram-negative bacteria attached to gastric epithelial cells living within the gastric mucous layer.[8] Transmission of the organism is most likely from person to person, either through oral or fecal contamination.[8] Although the mechanism by which H. pylori leads to ulcers is not fully understood, scientists believe an infection may cause malfunction of acid secretion.[9] They also believe the bacteria may cause chronic inflammation of the GI tract, resulting in weakening mucosa and allowing acid to form an ulcer in the mucosal lining.[2] It is estimated that 92% of duodenal ulcers and 70% of gastric ulcers are caused by H. pylori.[10] Even though H. pylori is a factor in a considerable number of cases, only 15% to 20% of individuals infected with H. pylori develop PUD in their lifetime.[10]

Lifestyle factors such as consumption of tobacco, alcohol, tea, coffee, and spicy foods are believed to stimulate gastric acid secretion, however, findings of epidemiological studies have been inconsistent.[12] A Japanese study revealed that smokers were at higher risk of gastric and duodenal ulcers, compared to non-smokers. Yet, another study failed to confirm the

association between PUD and use of tobacco.[12] The inconsistent results from studies performed on the effect of lifestyle factors with PUD leads the evidence to be inconclusive. Although emotional stress is no longer thought to be a cause of PUD, Physical stress may increase the risk of developing complications.[13] People with injuries such as severe burns, spinal injuries, brain damage and people undergoing major surgery often require rigorous treatment to prevent ulcers from developing as a secondary condition.[13] Recent genetic mapping of H. pylori allowed a better understanding of the pathogenicity, virulence factors, and host-pathogen interactions of this highly virulent organism.[13] Another recent issue is the finding of H, pylori in surface water, suggesting the existence of an important reservoir that could probably be eliminated via proper treatment of drinking water.[14]

Even though the evidence of lifestyle factors on PUD remains inconclusive, it is recommended to avoid certain habits such as smoking, alcohol use, and the consumption of high caffeine and spicy foods, in order to achieve optimal health. People who need the benefits of NSAIDs, and continue taking them may take steps to reduce the risk of ulcer occurrence. They can do this by taking the NSAID with a meal, using the lowest effective dose possible, and avoiding smoking and alcohol consumption.[15] Patients suffering from painful PUD symptoms may consider eating smaller, more frequent meals.[1] A study of Traditional Iranian Medicine claims there are several edible fruits and spices used for the management of PUD. They found these remedies were effective in reducing inflammation, discouraging H. pylori growth and healing wounds.[16] Nevertheless, a holistic approach of managing PUD needs pharmaceutical and clinical verification before conclusive results. Goals for patients with PUD are to optimize nutritional intake to meet nutrient needs and implement dietary and lifestyle factors that will reduce symptoms, decrease pain, and promote healing.[1]

MATERIALS AND METHODS:

The study was conducted on 250 patients attending the General Outpatient Department (GOPD) of the Enugu State University Teaching Hospital, South East Nigeria. 120 of the patients (Cases) had been diagnosed as having PUD and were receiving treatment for the ailment while the other 120

patients (Controls) were attending the clinic for other ailments not related to PUD. After obtaining the necessary permission from the hospital authorities and from the consultant in-charge of the GOPD, pretested questionnaires were administered to each of the respondents with their full consent. The questionnaire was divided into two sections. Section A was to collect basic demographic information like age and sex of the respondents (to ensure proper matching of cases and controls) while section B elicited information on their life style i.e. cigarette smoking, alcohol consumption, exposure to stressful conditions and consumption of hot and spicy foods. The results were displayed in the form of tables and graphs. The data was analyzed using the statistical package for social sciences (SPSS) version 11.

RESULTS:

Table 1: Age Distribution of Cases and Controls

N=240					
Age	Cases	Controls	Total	X^2	p-value
18-23	28	44	72		
24-29	33	36	69		
30-35	14	12	26	9.166	0.103
36-41	14	7	21		
42-47	10	4	14		
>47	21	17	38		
Total	120	120	240		

Age group with the highest number of cases (27.5%) was 24-29 years while those with the lowest number of cases (8.3%) were age 42-47. The controls also had a high number of respondents (30%) from the age group 24-29; this was second to age group 18-23 that had (36.7%) respondents. Using the level of significance of P< or = 0.05), it can be seen that there was no significant difference between the age distribution of cases and controls (P-value=0.103).
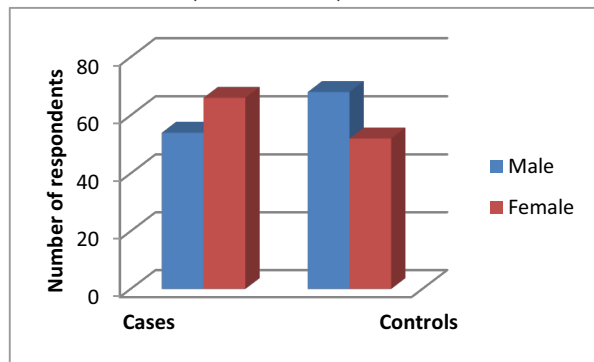

Figure 1: Sex Distribution of Cases and Controls

The total number of males is 122 and 118 as the total number of females, although majority of the cases were female (55%) as against 45% of male cases. The controls were dominated by males 56.7% while female were 45.5%. The p-value is 0.071 showing there was no statistically significant difference between the sex distribution of cases and controls
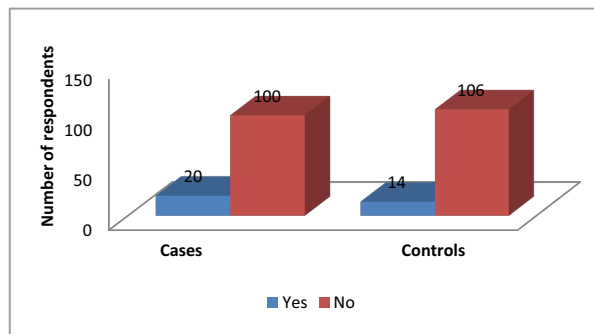

Figure 2: Smoking Habit of Cases and Controls. (Do you smoke?)

The chart shows that about 20(16.7%) of cases and 14(11.7%) of controls are smokers, whereas 100(83.3%) cases and 106(88.3%) of controls are non smokers. The p-value is 0.267 and this level is equally not statistically significant.

Table 2: Alcohol Consumption by Cases and Controls

N=240					
Do you consume alcohol?	Cases	Controls	Total	X^2	p-value
Yes	63(52.5%)	59(49.2%)	122		
No	57(47.5%)	61(50.8%)	118	0.267	0.606
Total	120	120	240		

63.5% of cases and 49.2% of controls consume alcoholic drinks while 47.5% of cases and 50.8% of controls do not take alcoholic drinks in any form. The p-value is 0.606 (This is not statistically significant)

Figure 3: Table showing the Relationship between stressful condition and occurrence of peptic ulcer pain

N=240					
stress related condition	Cases	Controls	Total	X^2	p-value
Yes	75(62.5%)	37(30.8%)	112		
No	45(37.5%)	83(69.2%)	128	24.174	0.000
Total	120	120	240		

62.5% of cases related their occurrence of peptic ulcer pains to stress and only 37.5% of them were not affected while significant controls 69.2% were not affected by stress. The P-value is 0.000 (This level is statistically significant)
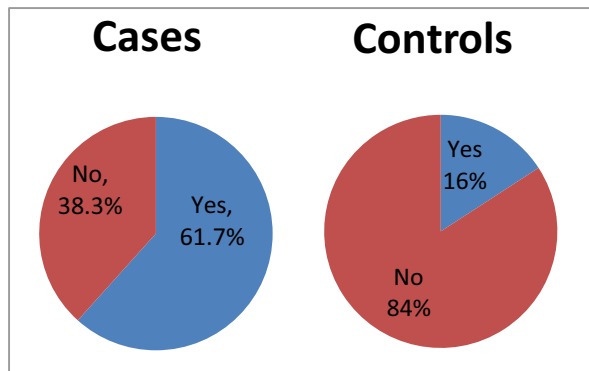

Figure 4: Pie Chart showing the effects of Hot and Spicy Foods On Cases and Controls

Most of the cases 74(61.7%) were affected by hot & spicy foods while only 19(15.8%) controls were affected by spicy foods. 46(38.3%) cases and 101(84.2%) controls are unaffected by hot and spicy food. The p –value is 0.000. (This level is statistically significant)

DISCUSSION:

Using the 5% tolerable error (or P-value < / = 0.05) There is no significant difference in the age distribution of cases and controls (P-value=0.103). Similarly, there is no significant difference in the sex distribution of cases and controls (P-value=0.071). This is due to the fact that since this is a case-control study, the cases were matched for the demographic characteristics like age and sex so as to allow an unbiased perception of the variables under study. Figure 2; displays the smoking habits of cases and controls. The P-value is 0.267 and this signifies that there is no statistically significant difference between the cases and controls as far as their smoking habits were concerned. Also there is no significant difference between the effect of alcohol consumption as a risk factor for PUD in the cases and controls (P-value= 0.606). The consumption of hot and spicy foods was found to play a significant role as a risk factor for PUD in this study. These findings agree with the findings of previous researchers who

discovered that lifestyle factors such as consumption of tobacco, alcohol, tea, coffee, and spicy foods are believed to stimulate gastric acid secretion, however, findings of epidemiological studies have been inconsistent.[12] Yet, another study failed to confirm the association between PUD and use of tobacco.[12] A Japanese study revealed that smokers were at higher risk of gastric and duodenal ulcers, compared to non-smokers. Also this study found that exposure to stressful conditions is a risk factor for the occurrence of PUD (P-value=0.000). This compares with the finding at Stanford University School of Medicine where it was discovered that although emotional stress is no longer thought to be a cause of PUD, Physical stress may increase the risk of developing complications.[13] This study also agrees with that of Tulchinsky T.H. who is of the opinion that even though the evidence of lifestyle factors on PUD remains inconclusive, it is recommended to avoid certain habits such as smoking, alcohol use, and the consumption of high caffeine and spicy foods, in order to achieve optimal health. People who need the benefits of NSAIDs, and continue taking them may take steps to reduce the risk of ulcer occurrence. They can do this by taking the NSAID with a meal, using the lowest effective dose possible, and avoiding smoking and alcohol consumption.[15]

CONCLUSIONS:

The findings from the present study indicate that lifestyle factors such as cigarette smoking and alcohol consumption do not play significant roles as risk factors for PUD in this environment. This finding which correlates with that of other previous researchers leads us to disregard the belief that these factors are major risk factors for PUD. But in as much as the findings are less implicative, consumption of these products should be done in moderation and a health education intervention is required in this environment to curtail these habits. However the consumption of hot and spicy foods as well as exposure to stressful conditions were found to be significant risk factors for PUD in this study. While the issue of consumption of hot and spicy foods may be controlled through a well-planned health education program, that of exposure to emotional and physical stress may not be so easy because the harsh economic condition in the country has made it mandatory for families to struggle to feed through whichever means they find possible.

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