PATTERN OF DUODENAL ULCER IN KARACHI

Pages with reference to book, From 212 To 215

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ABSTRACT

Seven hundred and twenty cases of endoscopically proven peptic ulcer were seen at PMRC Research Centre, Jinnah Postgraduate Medical Centre, during the last 13 years (June 1976-June 1989). Duodenal to gastric ulcer ratio was 5: 1. Duodenal ulcer was predominantly seen between 3rd and 5th decade of life, with a male to female ratio of 5. 7: 1. Seventy five percent cases were skilled persons. Places of origin showed 50% to be migrants; mostly from India while the rest belonged to various provinces of Pakistan. Sixty percent patients were smokers/tobacco chewers and 3% were simultaneously taking alcohol. History of NSAID intake was present in 5% cases only. Majority (85%) of the patients presented with pain, 42% had upper G.I. bleeding, 11% perforation and 1% pyloric stenosis (JPMA4O ; 212, 1990).

INTRODUCTION

Pattern of a disease in a given population can only be determined by collection of a well controlled population data or by reviewing the published data from various parts of the country. Large scale population studies are not economically feasible and published data on peptic ulcer disease in our population is scarce. This prompted us to comprehensively review our 13 years data ofendoscopically proven cases of peptic ulcer disease. Pakistan is a large country with a total area of 795422 sq. kilometers and a population of over eighty million.[1] It has 4 provinces; Sindh, Punjab, Northwest Frontier, and Balochistan. Karachi, the capital of Sindh is the largest and most populous city of the country having a population of over seven million, comprising of people from all the 4 provinces and migrants from India. The data collected here is therefore likely to define the pattern of disease in this country.

PATIENTS AND METHODS

In this retrospective study, case records of all the patients of peptic ulcer disease attending the outpatients department of PMRC Research Centre, Jinnah Postgraduate Medical Centre, Karachi during the last 13 years (June 1976 to June 1989) were reviewed. Only those patients were analysed in whom ulcer was demonstrated on endoscopy or at surgery. All cases with inconclusive endoscopy findings or surgical notes were excluded. Student ‘t’ test and x^2 tests were used for statistical analysis.

RESULTS

Of 720 cases of endoscopically proven peptic ulcer, 582(80.8%) had duodenal ulcer, 121 (16.8%) gastric and 17 (2.4%) prepyloric ulcers. As most of the prepyloric ulcers behave like duodenal ulcers, therefore for the purpose Of analysis 17 prepyloric ulcers have been included in the duodenal ulcer group, marking a total of 599 dubdenal ulcers. DU to GU ratio was 5: 1. Of 599 duodenal ulcers, there were 509 males and 90 females, M:F- 5.7: 1. Ages of the patients ranged from 11-85 years (mean 40.5 ± 15) with minor difference in the range or mean in both the sexes. Majority of the patients (64%) were between 3rd-5th decade of life when first seen. When the age specific rates of Karachi population were

projected against that of ulcer patients, a direct correlation was seen between the two (Figure 1).

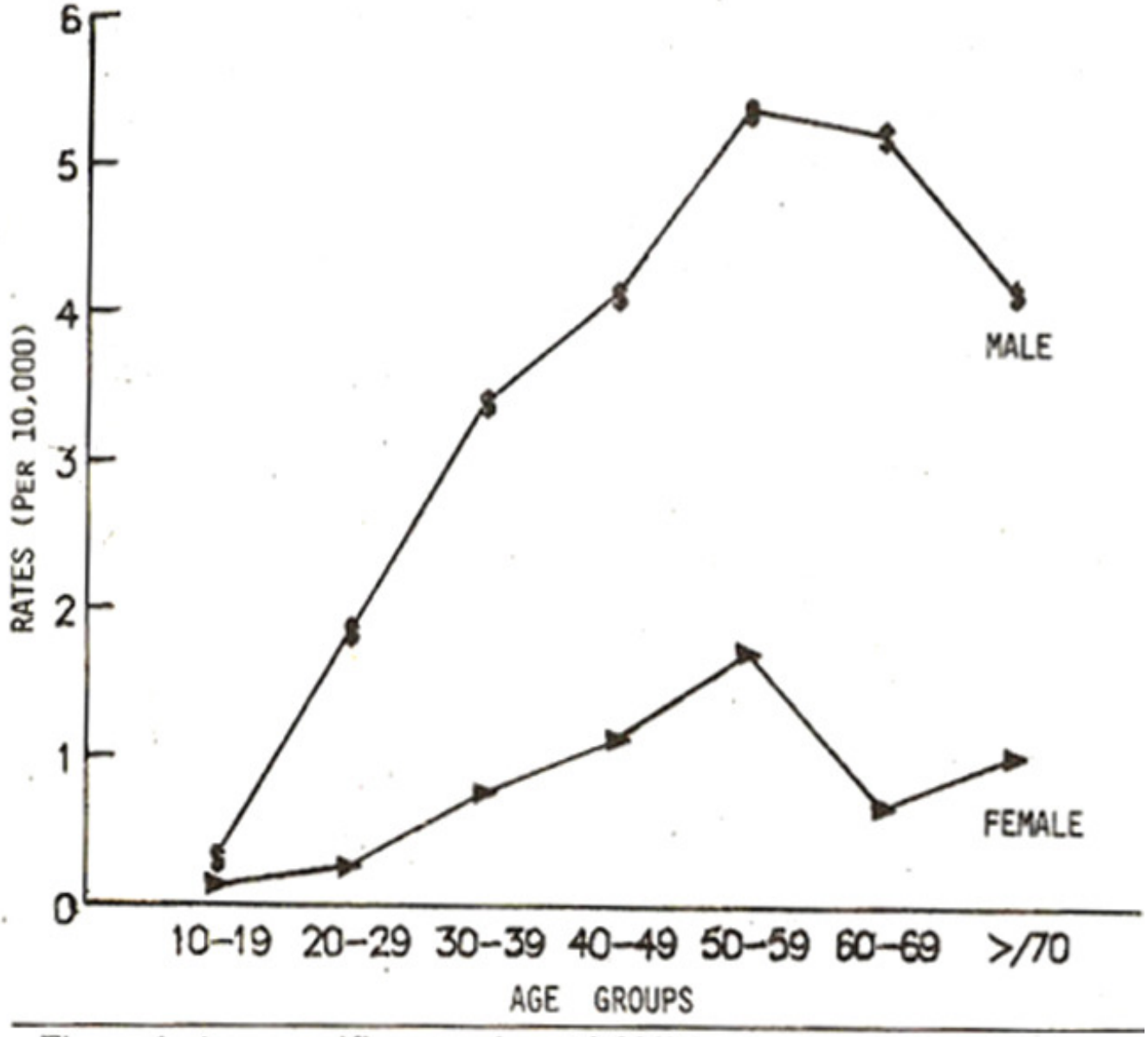

Figure 1. Age specific rates (per 10,000) in duodenal ulcer patients.

Similarly age adjusted rates showed that approximately 2.4/10,000 population of males and 0.5/10,000 population of females may be suffering from duodenal ulcer in Karachi. Occupations of the patients were known in 574 cases. Seventy five percent were skilled and 10% unskilled workers, 10.5% were housewives and 4.5% students. Of 496 cases in whom place of origin was known, 40% were migrants from India, 8% from Bangladesh and 2% from other countries, the remaining 50% were born in Pakistan. Of 50% cases born in Pakistan, 25% belonged to Sindh, 12% to Punjab, 10% to North-west Frontier Province and 3% to Balochistan (Figure 2).

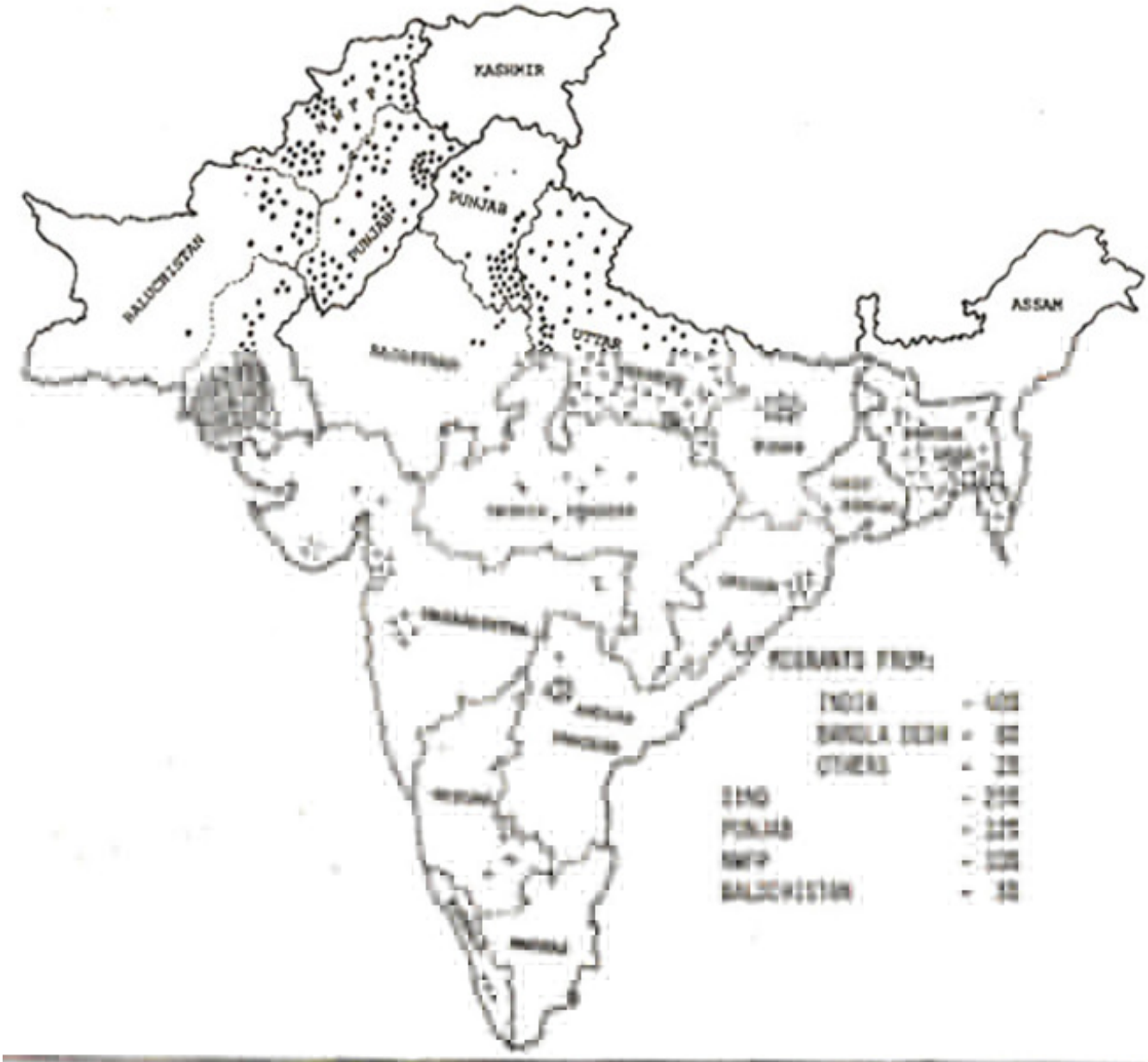

Figure 2. Place of origin of the patients with duodenal ulcer.

Median duration of symptoms prior to the diagnosis was 2 years in males (Mean 49 ± 65 months) and 1 year (Mean 51 ± 85 months) in females. Pain 'in the upper abdomen was the major presenting feature (85%), followed by vomiting (61%) and upper G.I. bleeding (42%) (Table I).

TABLE I. Frequency of symptoms in duodenal ulcer patients.

Symptoms	No.	%
Pain	511	85
Vomiting	363	61
G.I. Bleeding	252	42
Anorexia	190	32
Weight loss	190	32
Heartburn	258	43
Belching & Flatulence	246	41
Anaemia	162	27

Nocturnal pain was present in 30%, cases. Cigarette smoking and tobacco chewing were the two major addictions encountered. Of 566 patients in whom addictions were known, 39% were smokers and 11% tobacco chewers, while only 3% were also taking alcohol (Table II).

TABLE II. Comparison of addictions among duodenal ulcer and controls.

	Duodenal Ulcer		Controls	
	Male/Female	n (%)	n (%)	P value
Smokers	217/2	219 (38.7)	270 (26.7)	0.001
Tobacco chewers	43/22	65 (11.5)	76 (7.5)	0.01
Smoking & Tobacco chewing	43/0	43 (7.5)	12 (1.2)	0.001
Alcohol	3/0	3 (0.5)	–	–
Smoking & Alcohol	15/0	15 (2.5)	–	–
Ex smokers*	18/2	20 (3.5)	6 (0.6)**	0.001
No addiction	142/59	201 (36)	647 (63.9)	0.001
Total	566	1011		

* Ex smoker: those who had left smoking for >6 months.

** Cumulative other addictions.

Only 29 (5%) cases gave history of NSAID intake and one was also taking steroids. Sixty percent case were already taking various H2 receptor antagonists or antacids when first seen while the rest had no history of drug intake. Blood groups were known in 401 patients, of these 37.2% had blood group 0, followed by B (34.4%), A (20.2%) and AB (8.2%). Seven patients (1%) had pyloric stenosis and 78 had surgery before coming to us; of these 65 (58 males, 7 females) underwent simple closure of the perforated ulcer (11%), while 13 (2%) had elective surgery.

DISCUSSION

The basic data presented here is crude but is of importance because it describes the demographics of patients with duodenal ulcer in Pakistan; in fact, in one province of Pakistan, whose staple diet is wheat and which is a coastal area with humid climate. The duodenal to gastric ulcer ratio varies widely in different parts of the world. The ratio in this study was 5: 1 which is similar to that in United Kingdom, United States, Hong Kong and South China (4: 1). Very high ratios have been reported from Africa (19:1) and certain areas of India (32:1) and very low from North China (1.6:1), Australia (2:1), Norway (1:1) and Japan (1 : 2) [2-10]. One wonders whether these variations are the result of environmental or ethnic differences. As minor ethnic differences exist between North China and Hong Kong, between USA, UK and Australia or even within different provinces of India; therefore it appears that environmental factors are probably playing a more important role in ulcer pathogenesis. Majority of the patients in the present study were in their 3rd - 5th decade of life, similar figures (3rd - 4th decade) are reported from NorthChina and Hong Kong[7-11]. In India, it is occurring a decade earlier[12]. Occurrence of duodenal ulcer in younger individuals in Asian countries may be the reflection of the age distribution in the given population. It also explains why the duodenal to gastric ulcer ratio is wider in the developing countries and closer in the developed countries because if there are more young people in a population, duodenal ulcer being a disease of younger people will be more frequent, while on the contrary gastric ulcer is a disease of older age group. Earlier studies have shown that the earlier is the onset of the disease (before 30 years) the higher are the chances (50-80%) of getting a positive family history[11,13-15] for duodenal ulcer but such was not tfue in the present study where irrespeotive of the age only 8% cases gave a family history of ulcer in the family. Sex ratios for duodenal ulcer vary in various countries. In the present study the ratio was 5.7:1 which is higher than 2:1 in United Kingdom[2] 1 : 1 in United States[16], and 4: 1 in Hong Kong[11] , but is much less than 18 1 in India[17], 9: 1 in Africa[5] and Bangladesh18 and 7: 1 in China[7]. The wide geographical differences in the sex ratios and the changing sex ratios in some western countries over the past two decades[8,19] again support the environmental factor theory and the changing habits of the females in the developed vs. developing countries. Population studies in Pakistan have shown that blood group 'B' is the commonest blood group[20-22], but in the present study strong association of blood group '0' was found with duodenal ulcer patients. This association is similar to most reported studies[23,24] but in North China no correlation of blood group '0' was found with ulcer patients. [7] Karachi the most populous city of Sindh is a cosmopolitan city whose population mostly comprises of migrants from India. Being the largest trade centre, many people from different provinces of Pakistan migrated to Karachi to seek jobs, causing a mixed population in this city. The present study showed that 50% of our patients were migrants, mostly (40%) from India and rest belonged to Sindh (25%), Punjab (12%), Northwest Frontier Province (10%) and Balochistan (3%). This is probably the reflection of normal population pattern in Karachi indicating no ethnic influence in the prevalence of duodenal ulcer. Being a Muslim country, alcohol consumption is prohibited, therefore only a small percentage of our population takes alcohol socially. Cigarette smoking and tobacco chewing often with pain (beetle leaf with lime, nuts and catechu) or alone in the form of Nissvar are, the major addictions of our population. Previous epidemiological studies have shown an increased prevalence of smoking in peptic ulcer and vice versa[25-31]. In the present study 39% duodenal ulcer cases were smokers, 11% tobacco chewers and 7.5% addicted to both, as against 27%, 7.5% and 1% respectively in the controls[32] (Table II). No addictions were found in 36% patients as compared to 64% in controls, again showing a strong association of tobacco with duodenal ulcer. Previously it was thought that the risk of NSAID intake is related to gastric ulcer rather than duodenal ulcer, but some recent studies show that about 45% patients developed various duodenal

lesions and 6% developed duodenal ulcer with NSAIDs. [33] These figures are similar to our figure of 5% duodenal ulcer in patients taking NSAIDs Earlier Indian studies showed a low frequency of bleeding or perforation and a high frequency of stenosis or gastric outlet obstruction in those suffering from duodenal ulcer[35-36]. The present study in contrast showed a higher frequency of bleeding and perforation and a very low frequency of pyloric stenosis (1%). These figures are similar to most western studies and a recently published report from Kashmir[37,38]. The differences between the earlier Indian studies and ours might be due to the differences in diagnostic criteria used because endoscopy was not done in the Indian study as it was not availableat that time and H2 receptor antagonists were introduced later which might be responsible for the change in the natural history of ulcer disease.

REFERENCES

1. Population census of Pakistan. Bulletin 1981; 18.
2. Coggon, D., Lambert, P. and Langinan, M.J. 20 years of hospital. admissions for peptic ulcer in England and Wales Lancet, 1981: 1;1302.
3. Elashoff, J.D. and Grossman, MI. Trends jñ hospital admissions and death rates for peptic ulcer in the United States frpm 1970 to 1978. Gastroenterology, 1980; 78: 280.
4. Koo, J., Ngan, Y.K. and Lam, S.K. Trends in hospital admission, perforation and mortality of peptic ulcer in Hong Kong from 1970 to 1980. Gastroenterology, 1983; 84: 1558.
5. Tovey, F.I. and Tunstall, M. Duodenal ulcer in black populations in Africa south of the Sahara. Gut, 1975; 16: 564.
6. Tovey, P.1. Peptic ulcer in India and Bangladesh. Gut, 1979; 20: 329.
7. Zhao, X.C., Li, J.M. and Peng, W.C. Observations on peptic ulcer in Shan Dong, China. J. Gastroentcrol. Hepatol., 1988; 3: 345.
8. Biilington, B.P. Observations from New South Wales on changing incidence of gastric ulcer in Australia. Gut, 1956; 6: 121.
9. Ostensen, H., Gudmundsen, T.E., Bolz, K.D., Burhol, P.G. and Bonnevie,O. The incidence of gastric ulcer and duodenal ulcer in North Norway. A prospective epidemiological study. Scand. J. Gastroenterol., 1985; 20 :189.
10. Iwasaki, M. Nation-wide tabulation of results in gastricmass survey. Sto. Intest., 1971; 6: 745.
11. Lam, S.K. and Ong, G.B. Duodcnal ulcers; earlyand late onset. Gut, 1976; 17: 169.
12. Nanivadekar, S A Tandon, N H Kuloor, P L Bichile I S Tahiliani, R.R., Vijan, V. and Sahu, C.P. Comparative freqüencyof duodenal and gastric ulcer: in Bombay. Indian .1. Gastroenterol., 1984 ;3:77.
13. Fallstrom, S.P. and Reinaud, T. Peptic ulcer in children. Acta Paediatr. Scand., 1961; 500 : 431.
14. Robb, J.D.A., Thomas, P.S., Orszulok, J. and Odlingsmee, G.W. Duodenal ulcer in children. Arch. Dis. Child., 1972; 47: 688.
15. Jirasek, V. Hereditary factors in the aetiology of peptic ulcer. Acta Univ. Coral. Med. (Paraha), 1971; 17:383.
16. Kuruta, J.H., Haile, B.M and Elashoff, J.D. Sex difference in poptic ulcer disease. Gastroenterology, 1985;88:96.
17. Jayaraj,A.P., Tovey, F.I. and Clark, C.O. Possible dieraryprotective factors in relation to the distributionof duodenal ulcer in India and Bangladesh. Gut, 1980; 21: 1067.
18. Hassan, M., Shah, M.D., Ali, K. and Azad, A.K. Peptic ulcer in Bangladesh; an endoscopic survey. Gut, 1985; 26: A1117.
19. Moshal, M.G. Ethnic differences in duodenal ulceration. II. 3392 patients in Durban (1972-1979), Rinioin, D.L., eds. in the genetics and heterogenesity of common gastrointestinal disorders. Edited by J.I. Rother, I.M. Samloff and D.L. Ramain., NewYork, Academic Press, 1980, p. 101.
20. Nasim, PH., Ashraf, M., Sheikh, 0.1., Kokab, T. and Shaheen, 0. Distribution of ABO and Rh blood

&oups in the residents of Bahawalpur. JPMA., 1987; 37: 7.
21. Afzal, M., Ziaur-Rehman, Hussaiñ, F. and Siddiqui, R. A survey of blood groups. JPMA., 1977; 27: 426.
22. Zuberi, S.J. and Lodi, T.Z. Hepatitis 13 antigen in blood donors in Karachi. JPMA., 1974; 24: 126.
23. Aird, L,Bentàli, HR., Mehigan, J.A. and Roberts,J.A.Kfleblood groups in: relation to peptic ulceration and carcinoma of colon, rectum, breast and bronchus. Br. Med. J., 1954; 2: 215.
24. Tovey, F.I. Duodenalulcer in Mysore. Trop. Geogr. Med., 1972; 24:101.
25. Kasanen, A. and Forsstroem, J. Social stress and living habit in the etiology of peptic ulcer. Ann. Med. Intern. Penn., 1966; 55: 13.
26. Monson, R.R. Cigarette smoking and body form in peptic ulcer. Gastroenterology, 1970; 58: 377.
27. Jorgensen, T.G. and Gyntelberg, F. Occurrence of peptic ulcer disease in Copenhagen males age 46-59. Life incidence and habits, physical factors and concomitant disease. Dan. Med. Bull., 1976; 23:23.
28. Bock, O.A. Alcohol, aspirin, depression, smoking stress and the patient with a gastric ulcer. S. Afr. Med. 1, 1976; 50: 29;
29. Edwards, F., MeKeown, T. and Whitfield, A.G.W. Association between smoking and disease in men over sixty. Lancçt, 1959; 1: 196.
30. Higgins, M.W. and Kjelsberg, M. Characteristics of smokers and non-smokers in Tecumsch,Michigan. II. The distribution of selected physical measurements and physiologic variables and the prevalence of certain disease in smokers and non-smokers. Am. J. Epidemiol., 1967 ; 86: 60.
31. Friedman, G.D., Siegelaub, A.B. and Seltzer, C.C. Cigarettes, alcohol, coffee and peptic ulcer. N. EngI. J. Med., 1974; 290 : 469.
32. Mahmood, Z. Smoking and chewing habits of people of Karachi 1981. JPMA., 1982 ; 32: 34.
33. Eliakim, R., Ophir, M. and Rachmilewitz, D. Duodenal mucosal injury with non-steroidal anti-inflammatory drugs. J. Clin. Gastroenterol., 1987; 9 : 395.
34. Dogra, JR. Incidence of peptic ulcer in Indiawith special reference of South India. indian J. Med. Res., 1941; 29 : 665.
35. Kaushik, 5.?. attd Moses, T. A study of pytoric stenosis in South India. InDus.I Med. Res., 1973;82 2fl3.
36. Tovey, F.I. Duodenal ulcerin Mysore. Trop. Geogr. Med., 1972, 24- 107.
37. Litton, A. and Murdoch, W.R. Peptic ulcer in South West Scotland. Gut, 1963 ; 4: 360.
38. Khuroo, M.S., Mahajan, It, Zargar, S.A., Javid, 0. and Munshi, S. Prevalence of peptic ulcer in India; an endoscopic and epidemiological study in urban Kashmir. Gut, 1989; 30: 930.