EFFECT OF MEAL ON INTRAGASTRIC pH IN PATIENTS WITH DUODENAL ULCER

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The acidity of gastric contents in patients with duodenal ulcer tends to be greater than normal[1]. This can be neutralized by frequent intake of meals, antacids or H. receptor antagonists. Gastric pH not only depends upon the consistency of food taken but also on its constituents. A liquid and pure proteinous meal has a strong buffering action while a solid or carbohydrate meal has little or no such effect[2,3]. Consumption of food containing spices often produces gastric irritation and are therefore thought to be ulcerogenic. Red chillies produced a significant rise in gastric acid secretion[4]. Black pepper[5] had no effect but asafoetida and capsaicin[6] produced damage to the gastric mucosa as shown by rise in DNA content of gastric aspirates. The present study was therefore done to see the effect of cooked spicy Pakistani diet vs a non-spicy diet on gastric pH of duodenal ulcer patients and controls.

PATIENTS, METHODS AND RESULTS

Forty patients (39 males and 1 female) with endoscopically proven duodenal ulcer were selected for the study and forty individuals (23 males and 17 females) with functional upper gastrointestinal symptoms and negative endoscopy served as controls. Patients with acute upper G.I. bleeding and those under 18 years of age were excluded. All studies on patients were done after withdrawal of H2 receptor antagonist for 48 hours and within one week of endoscopy. Patients and controls were equally divided into two groups. One group was given a spicy Pakistani meal (diet I) and the other, bland diet (diet II) as shown in the table. After an overnight fast pH electrode was passed nasally in the most dependent part of the stomach in sitting position, using M- 75 clinical pH meter calibrated with pH 1.0 and 7.0 buffers and pH was monitored at 5 minutes intervals for one hour in the basal state. The subjects were then given the meal and pH was recorded every 5 minutes for another three hours. Intragastric pH was also determined in six ulcer patients in whom milk was withdrawn from the diet while the remaining procedure remained unchanged. Of 40 duodenal ulcer cases, 20 were given diet land 20 diet II. Similar distribution was done in controls. Mean four hour pH profile in controls and patients with diet I and II and milk free diet is presented in the accompanying figure.

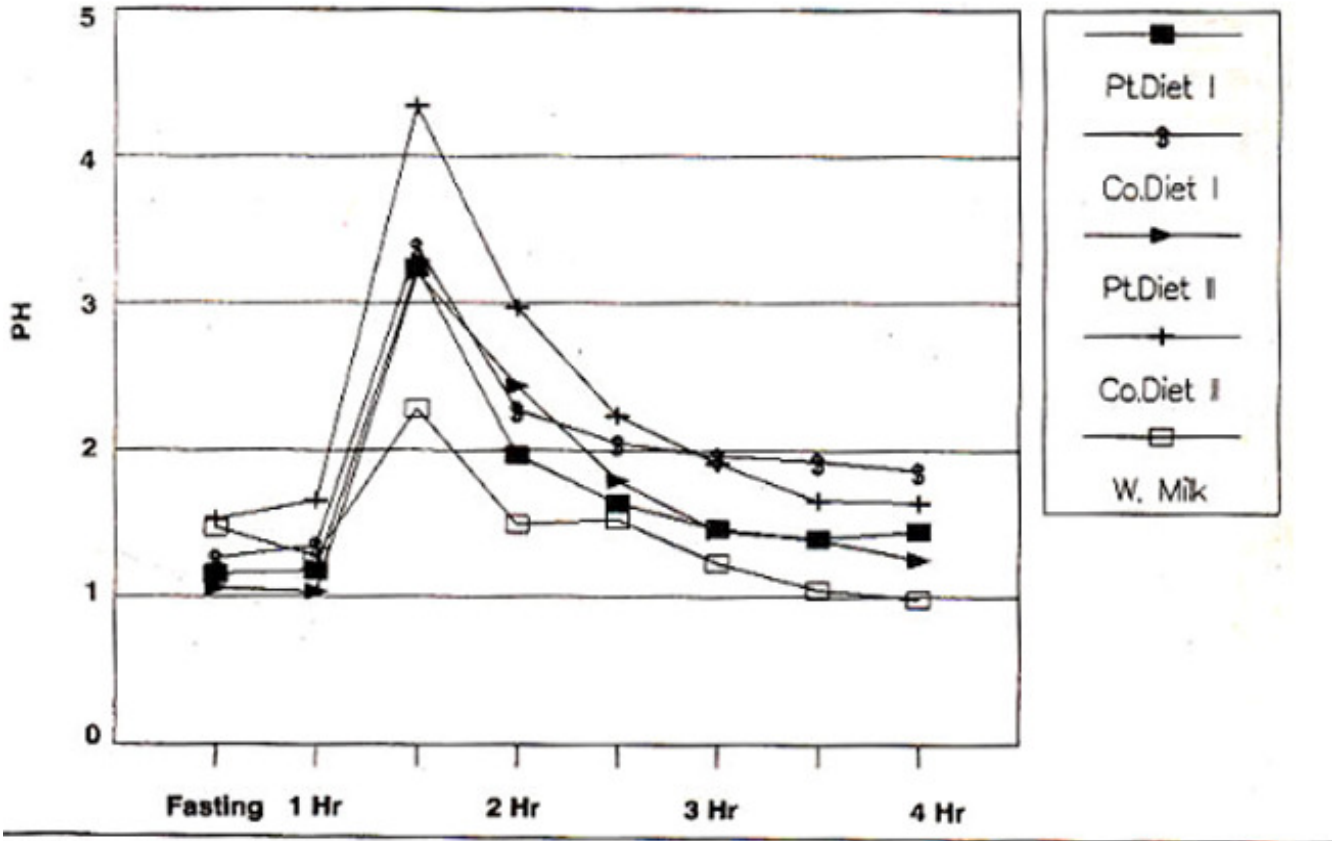

Figure. Mean pH four hour profile in duodenal ulcer patients and controls with diet I and II and without milk diet.

In controls basal pH was similar in both the groups with diet land II. After the ingestion of food there was an increase in pH attaining maximal value after 1/2 hour. However, the rise was transitory and soon after the intake there was a gradual decline.

TABLE. Constituents of spicy and bland diets.

Diet I		Diet II	
Milk	8 oz (1 glass)	Milk	8 oz (1 glass)
Sugar	2 tsp	Eggs	2
Chapati	4 oz (2 medium size)	Meat	2 oz (fried)
Meat	4 oz (cooked with spices)	Bread	4 slices (medium)
Oil/ghee	1 oz	Oil/ghee	1 oz
Spices consumed	2.5 gms red chilli powder 2.5 gms corriander powder	Without spices	

Patients followed a pattern similar to that of controls. Six patients in whom milk was withdrawn from

the diet rise in pH after meal was less evident than in other two groups.

COMMENTS

Effect of Pakistani spicy food and western bland diet on intragastric pH was evaluated. Both the diets did not have lasting buffering action. Meals comprising of milk had a better buffering effect than a solid meal and on its withdrawal from the diet the intake of food had no effect on gastric acidity and pH remained unaltered. Food has similar effects on gastric pH irrespective of the type consumed. Further work should be done on the effect of cooked spicy food on gastric secretion and on gastric mucosa.

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