LETTERS TO THE EDITOR

Influence of time of dinner on nocturnal gastric pH

SIR,—We read with interest the study by Duroux *et al*[1] on the differential effects of different times of dinner on nocturnal gastric pH. The most prominent aspect of this study lies in the potential therapeutic implications in patients with duodenal ulcer. Before embarking on controlled clinical trials aimed at verifying the benefit of early dinner in this disease, however, as proposed by the authors, certain considerations seem to be necessary.

It is true that meals are important determinants of circadian acidity changes as documented by 24 hour gastric pH profiles, but time dependent fluctuations occur in many gastrointestinal functions independently of food stimulation, and gastric acid secretion is one example of this. In contrast with the authors' statement that intragastric pH changes little in fasting subjects, a well defined circadian rhythm of gastric acidity with high rates during the evening and low ones in early morning has been shown in normal subjects and in men with active duodenal ulcer who were infused with a saline solution intravenously over a 24 hour span.[2] This pattern was not correlated with changes in plasma gastrin, because it is well known that plasma concentrations closely depend on meal intake.[3] Therefore Moore and Halberg[2] advised studying other variables, such as the mitotic rate and the receptivity to neurohormonal stimulation of gastric parietal cells, in order to understand the mechanisms of circadian rhythmicity of acid secretion. It is also likely, as suggested by the authors, that sleep affects fluctuations in nocturnal gastric acidity,[4,5] even though the mechanisms are at present unclear. All these factors, however, may either interact with or work independently of meals, which must only be considered as one of the possible variables which influence the complex phenomenon of gastric acid secretion, and this is particularly so when time dependent measurements of acidity are done.

The authors' explanation of the mechanism by which an early meal raises nocturnal intragastric pH is certainly speculative (as they admit) and needs to be confirmed in further experiments. There is, however, another critical point to be considered, and that is that their investigation was done in healthy volunteers. This implies the likelihood that their findings derived from a normal population cannot be transposed to duodenal ulcer patients, who have a postprandial acid secretory response and a circadian gastric acid secretion which greatly differ from those of healthy controls.[6,7] On the other hand, several pH metry studies[8,9] have already shown that the nocturnal pattern of gastric acidity is characterised by much lower pH levels in duodenal ulcer patients than in normal subjects and this difference is particularly evident in the early morning.[8] What is more striking is that the above findings were obtained in groups of duodenal ulcer patients who had dinner at 6 pm, which is the same time proposed by the authors in order to raise nocturnal gastric pH. In other words, the results by Duroux *et al*[1] are very interesting, but should be confirmed in patients with duodenal ulcers before proposing a simple early dinner as a valid means for treating ulcer disease.

V SAVARINO
G S MELA*
AND G CELLE
ISMI—Cattedra di Gastroenterologia and
**Clinica Medica R Università di Genova,*
Genova, Italy

1 Duroux PH, Bauerfeind P, Emde C, Koelz HR, Blum AL. Early dinner reduces nocturnal gastric acidity. *Gut* 1989; **30:** 1063-7.
2 Moore JG, Halberg F. Circadian rhythm of gastric acid secretion in men with active duodenal ulcers. *Dig Dis Sci* 1986; **31:** 1185-91.
3 Moore JG, Wolfe M. Circadian plasma gastrin patterns in feeding and fasting man. *Digestion* 1974; **11:** 226-31.
4 Orr WC, Hall WH, Stahl ML, Durkin MG, Whitsett TL. Sleep patterns and gastric acid secretion in duodenal ulcer disease. *Arch Intern Med* 1976; **136:** 655-60.
5 Machida T. A study of intragastric pH in patients with peptic ulcer—with special reference to the clinical significance of basal pH value. *Gastroenterol Jpn* 1981; **16:** 447-58.
6 Malagelada JR, Longstreth GF, Deering TB, Summerskill WH, Go VL. Gastric secretion and emptying after ordinary meals in duodenal ulcer. *Gastroenterology* 1977; **73:** 989-94.
7 Feldman M, Richardson CT. Total 24-hour gastric acid secretion in patients with duodenal ulcer. Comparison with normal subjects and effects of cimetidine and parietal cell vagotomy. *Gastroenterology* 1986; **90:** 540-4.
8 Savarino V, Mela GS, Scalabrini P, Sumberaz A, Fera G, Celle G. 24 hour study of intragastric acidity on duodenal ulcer patients and normal subjects using continuous intraluminal pH-metry. *Dig Dis Sci* 1988; **33:** 1077-80.
9 Merki HS, Fimmel CJ, Walt RP, Harre K, Roehmel J, Witzel L. Pattern of 24 hour intragastric acidity in active duodenal ulcer disease and in healthy controls. *Gut* 1988; **29:** 1583-7.

NOTES

Max Siurala Award 1990

Professor P J Scheuer has accepted the above award from the Finnish Society of Gastroenterology and will be giving the Max Siurala Lecture in Tampere, Finland in March 1990.

European Pancreatic Club

The 22nd annual meeting will be held from 15–17 October 1990 in Basel, Switzerland. Further information from Carita Frei, Secretary, Division of Gastroenterology, University Hospital, CH-4031, Basel, Switzerland.

XVth International Update on Liver Disease

To be held from 12-14 July 1990 at the Royal Free Hospital and School of Medicine, London. Further details from Professor Neil McIntyre, Academic Dept of Medicine, Royal Free Hospital, Pond Street, London NW3 (tel 01-794 0500, ext 3969).

Physiology and Pathophysiology of the Splanchnic Circulation

This FASEB summer research conference will be held from 22–27 July 1990. Information from The Federation of American Societies for Experimental Biology, Splanchnic Circulation Conference, 9650 Rockville Pike, Bethesda, Md.20814, USA.

International Symposium on the Pharmacotherapy of Gastrointestinal Motor Disorders

This symposium will be held from 2–4 September 1990 in Adelaide, South Australia. Information may be obtained from The Secretariat, Gastrointestinal Motility Symposium 1990, PO Box 153, Nairne, South Australia 5252.

Genetics of Gastrointestinal Disorders

This 1990 Clinical Genetics Conference will be held from 8–11 July 1990 in Dearborn, Michigan. Further information from Carol Blagowidow, March of Dimes Birth Defects Foundation National HQ, 1275 Mamaroneck Avenue, White Plains, NY 10605, USA.

XXIV International SMIER Congress. Endo 90: Infection, immunity, endoscopy

The above congress will be held from 20–22 September 1990, at the Brussels Congress Centre. Information may be obtained from Dr E de Koster, Gastroenterology Unit, University Hospital Brugmann, Place Van Gehuchten 4, B-1020 Brussels, Belgium.

6th World Congress in Ultrasound

To be held from 1–6 September 1991 in Copenhagen, Denmark. Details from the Congress Secretariat, Spadille Congress Service, Sommervej 3, DK-3100 Hornbaek, Denmark.