Correspondence

Sensitisation model still satisfactorily explains parietal cell activity

Sir,

In the recent paper by Boulos, Faber, Whitfield, Parkin, and Hobsley (*Gut* 1983; **24**: 549–56), they propose a new hypothesis that there are two types of parietal cell categorised by their responses to histamine and vagal stimulation. Seventy per cent of the stimulatory effect of histamine on gastric secretion is argued to be mediated *via* acetylcholine. One of the main observations upon which this hypothesis is based is the reduction in histamine-stimulated secretion after vagotomy. Vagotomy, however, does not decrease the capacity of the stomach to secrete acid; the decrease in secretion observed after vagotomy is caused by reduced sensitivity.¹ Although the dose of histamine used by Boulos *et al.* (40 µg/kg/h) would appear to cause maximal secretion before vagotomy, it is sub-maximal after vagotomy, and increasing the dose of histamine will increase acid output,² a finding inconsistent with the new hypothesis. Vagotomy similarly reduces the sensitivity to pentagastrin.²

Boulos *et al.* further suggest that their hypothesis explains the smaller secretory response to insulin compared with that to histamine. Insulin is a complex stimulant and the notion that stimulation of gastric secretion by insulin is mediated solely *via* vagal cholinergic fibres is an unproven assumption.¹ Similarly, the multiple actions of insulin may contribute to its failure to produce maximal secretion. Insulin induces hypokalaemia, and prevention of this increases acid output, although not to the maximum observed with histamine.³ Insulin-induced hypoglycaemia, as well as stimulating gastric secretion, may be a further restraint on parietal cell activity.^{4–6} Insulin and the associated hypoglycaemia also have other actions which may limit acid secretion including release of glucagon⁷ and catecholamines,⁸ and hypotension.⁹ Consideration of these, and other, varied and widespread inhibitory mechanisms make it unnecessary to discard the sensitisation hypothesis.¹⁰

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Reply

Sir,

We are grateful for the opportunity to reply to the above letter.

The basic problem is whether the reduction in histamine-stimulated secretion resulting from vagotomy can be restored by increasing the dose of histamine to the preoperative level in man. There is no question that it can be in dogs,¹ but the evidence in man is unconvincing. Konturek reported that a four-fold increase in histamine raised the post-vagotomy secretion rate from 70% to 85% – that is, not to 100%. This was a marginal increase, especially as no measurements of pyloric losses or duodenogastric reflux had been made. Such errors could well account for the reported increase. Moreover, completeness of vagotomy had been adjudged only by Hollander's criteria which are grossly inaccurate^{2,3} and the fact that the post-vagotomy histamine test at conventional dosage produces 70% of the preoperative response indicates that several of the subjects had had an

inadequate vagotomy (the figure should have been 30% as shown in our article). The first paper quoted in the letter gave no data and Grossman's conclusions were drawn from other studies which can be similarly criticised.

The comments in the second paragraph we agree with, but they are peripheral to the main point. We reiterate our view as expressed in our paper that, while the sensitivity hypotheses can still explain the observed facts, it demands belief in a coincidence which our alternative hypothesis does not need.

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Books

Recent advances in mucosal immunity Edited by W Strober, L A Hanson, and K W Sell. (Pp. 435; illustrated; £68.90.) New York: Raven Press. 1982. This book is based on a symposium held at the National Institutes of Health. The contributors are immunologists and a highly distinguished panel has been assembled to present a first class account of current knowledge of mucosal immunity. The subject is presented in well laid out sections. Lymphocyte traffic through the mucosa, the secretory immunoglobulin system and the role of liver macrophages in processing absorbed antigens are predictably included and are well covered as is the transport of IgA across the liver.

Two sections which I found particularly exciting were those dealing with T and B cell cooperation within the mucosa and the differentiation of IgA-B cells. Both of these sections are demanding reading but the effort is worth it for the new concepts and

ideas for future research that they contain. There is a section devoted to intraepithelial lymphocyte function which is a useful summary but perhaps pays too little attention to the difficulties of interpretation when pure populations of cells cannot be achieved. Finally, there are sections on the role of mucus, the interactions of micro-organisms with epithelial cells and mucosal immunity within mammary glands. One of the notable features of the book is that each section concludes with an overview entitled 'Review and Discussion', the majority of which are excellent and place the individual contributions in context of wider knowledge.

I had only one criticism of the book in general. It is almost entirely devoted to animal studies. This is not surprising as inevitably human data are difficult to obtain. Some human data are available, however – for example, functional and phenotypic characterisation of mucosal T cells – and a review of these in health and disease, in the context of basic immunological studies, might have been helpful.

Nevertheless, this book is full of information, contains some valuable summaries, and will be of great help to those working in the field. It certainly requires an understanding of immunology and is not to be recommended for the general reader. It should be a 'must' for those involved in mucosal immunity but, at £68.90, it will be a prohibitive one.

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Ultrasound annual 1982 Edited by RC Sanders. (Pp. 353; illustrated; \$59.52.) New York: Raven Press. 1982.

Ultrasound has rapidly become one of the most important non-invasive imaging modalities available, and this book will prove useful not only to those starting to learn the technique but also those already experienced in the subject.

There are 10 chapters in the book and these cover ultrasound of the pancreas, renal medical disorders, neonatal intracranial ultrasound, the gall bladder, the carotid artery, operative real-time B-mode scanning, obstetric measurement, ultrasonic puncture techniques, breast ultrasonography, and fetal echocardiography. As these sections are written by various experts in the field, there is obviously considerable variation in the approach to the subject in the different chapters. The overall impression given by the book, however, is excellent. There are plentiful illustrations of normal anatomy and pathological conditions, and most of the contributors contrive to give a very balanced and careful assessment of the scope and the limitations of ultrasound in their particular field of interest. There are no serious criticisms to be made of the book and