LETTERS TO THE EDITOR

Serum pepsinogens in blood transfusion donors

EDITOR,—We read with great interest the paper by Veenendaal *et al* in *Gut*.[1] In this study the authors showed that blood donors positive for *Helicobacter pylori* antibodies revealed higher serum pepsinogen A and C levels than their seronegative counterparts. In addition, the authors plotted the measured IgA and IgG absorbance index against age and showed a weak but significant correlation between the height of the absorbance index and rising age. The authors suggested that this increase could be caused by progression of chronic superficial gastritis.

We cannot confirm these findings and do not agree with this conclusion. In an earlier study we showed that the positive/negative (P/N) ratio (identical to Veenendaal's absorbance index) in patients with non-ulcer dyspepsia (NUD) and proved active helicobacter associated gastritis was significantly higher than in healthy seropositive blood donors[2] (mean 3·63 (1·24) range 1·06–6·45 *v* mean 2·32 (0·47) range 1·51–3·43 respectively, $p<0·001$). Although considerable overlap was present in the lower ranges, it was concluded that high P/N ratios occur with active inflammation and that lower P/N ratios can reflect a serological scar of past infection as well. It was also shown that inflammation with polymorphonuclear cells invading the mucosa causes a higher P/N ratio, hence antibody response, compared with a milder degree of inflammation.[3] In the Table

TABLE *Mean P/N ratio and standard deviation (SD) in patients with proved helicobacter gastritis and healthy seropositive blood donors*

	H Pylori *gastritis*		*Blood donors*	
Age (yr)	*Number*	*Mean P/N ratio (SD)*	*Number*	*Mean P/N ratio (SD)*
21–30	7	3·34 (0·93)	10	2·14 (0·43)
31–40	8	2·90 (1·24)	35	2·24 (0·41)
41–50	8	3·75 (0·97)	55	2·35 (0·49)
51–60	12	3·71 (0·92)	36	2·46 (0·48)
61–70	11	4·37 (1·25)	7	2·23 (0·62)

and Figure the mean P/N ratio and the standard deviation of the healthy seropositive blood donors and the patients with NUD are plotted against age. It is clear that the findings of Veenendaal *et al* cannot be confirmed as no increase in P/N ratio with rising age is seen in the healthy blood donors. On the other hand, a slight increase in antibody response is seen among the patients with non-ulcer dyspepsia. Comparison of age cohorts 21–30 and 31–40 with age cohort 61–70 revealed a p value of 0·08 and 0·02 respectively (Student's *t* test); the other cohorts showed no differences in the height of the P/N ratio. In our opinion, this does not indicate that the antibody titre in an individual patient increases with rising age. Longitudinal serological follow up has not been done to our knowledge. The only data reported in previous studies show a decrease in antibody

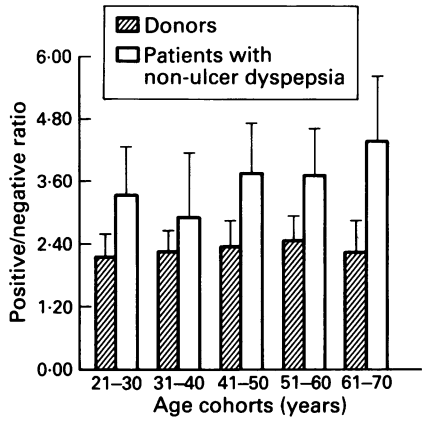

Figure: Data from the table shown graphically.

titre after therapeutic intervention aimed at suppression or eradication of *H pylori*, and an increase in the incidence of recrudescence or reinfection. From the paper of Veenendaal *et al* it cannot be concluded that the antibody titre from an infection with *H pylori* acquired at an early age rises when the patients get older.

The statement that chronic active gastritis becomes worse with rising age can be considered correct if the development of intestinal metaplasia and glandular atrophy are considered a part of the deterioration of gastric mucosal histology. As reported in previous studies, however, the role of *H pylori* during the course diminishes and it is more logical to expect that the antibody response in the individual patient does not rise during the course of helicobacter gastritis. Serological follow up in gastritis patients is necessary to learn more of the natural history of the antibody response.

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1 Veenendaal RA, Biemond I, Pena AS, van Duijn W, Kreuning J, Lamers CBHW. Influence of age and Helicobacter pylori infection on serum pepsinogens in healthy blood transfusion donors. *Gut* 1992; **33**: 452–5.
2 Loffeld R, Stobberingh E, van Spreeuwel JP, Flendrig JA, Arends JW. The prevalence of anti Campylobacter pylori antibodies in patients and healthy blood donors. *J Med Microbiol* 1990; **32**: 105–9.
3 Loffeld R, Stobberingh E, Flendrig JA, van Spreeuwel JP, Arends JW. Diagnostic value of an immunoassay to detect anti Campylobacter pylori antibodies in non-ulcer dyspepsia. *Lancet* 1989; i: 1182–5.

Reply

EDITOR,—We thank Loffeld *et al* for their interest in our paper which showed that the age related increase in serum pepsinogen A and C occurring in healthy populations, is caused by *Helicobacter pylori* infection.[1] As Loffeld *et al* do not mention data regarding Pepsinogen A and C, further comparisons between their patient group and ours on this point are thus unfortunately not possible. In addition, we also noted an age related increase in *H pylori* antibodies expressed as an IgA and IgG absorbance index which gives a semiquantitative serological result. In their letter, Loffeld *et al* do not mention data regarding a correlation analysis. They do state, however, that the positive/negative (P/N) ratio in patients with non-ulcer dyspepsia increases weakly with rising age (comparison of age cohorts 21–30 and 31–40 with age cohort 61–70 showed a p value of 0·08 and 0·02 (Student's *t* test)).

In Dr Loffeld's group of seropositive blood transfusion donors, a slight increase of the P/N ratio with rising age was also seen (comparison of age cohorts 21–30 and 31–40 with age cohort 51–60 gave a p value of 0·06 and 0·04), when the unrepresentative age cohort 61–70 with only seven donors (maximal age for blood donation 65 years) was disregarded. Loffeld *et al* also found that a higher serological P/N ratio is related with more active inflammation. We feel that these findings support rather than dispute our suggestion previously mentioned.

We do agree, however, with Loffeld *et al* that only long term longitudinal serological follow up together with histological examination of repeated gastric biopsy specimens can provide certain proof for our suggestion.

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1 Veenendaal RA, Biemond I, Peña AS, van Duijn W, Kreuning J, Lamers CBHW. Influence of age and *Helicobacter pylori* infection on serum pepsinogens in healthy blood transfusion donors. *Gut* 1992; **33**: 452–5.

Faecal pH and colon cancer

EDITOR,—I would like to comment on the excellent letter[1] from Johannesburg reporting on the low faecal pH levels in African subjects and their possible connection with the low incidence of colorectal cancer.

My own experience in India supports the concept of a possible relation between faecal pH and the incidence of large bowel cancer.[2,3] A group of 60 patients with colorectal cancer, principally south Indians, had a median faecal pH of 8·6–9·0, compared with a median pH of 6·1–6·5 in 120 matched healthy Indian subjects. The large differences in pH values between patients with colorectal cancer and the control group appear to be dependent on diet. The former ate non-masticatory meals of boiled refined rice, which were low in dietary fibre, and low in fermented milk products. The latter ate high fibre meals of thick whole wheat chapatties, vegetable and legume curries, and their diets were also high in fermented milk products such as yoghurt, yoghurt drink, white cheese, and ghee – made from fermented milk and rich in short chain fatty acids. Fibre ferments in the gut lumen liberating large quantities of acetic acid (precursor of short chain fatty acids). This augments the H^+ ion in the case of the controls.[4]

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1 Walker ARP, Walker BF, Segal I. Faecal pH and colon cancer [Letter]. *Gut* 1992; **33**: 572.
2 Malhotra SL. Faecal urobilinogen and pH of stools in population groups with different incidence of cancer of the colon and their possible role in its aetiology. *J R Soc Med* 1982; **75**: 709–14.
3 Malhotra SL. Diet and large bowel cancer. *J R Soc Med* 1990; **83**: 813–4.