Correspondence

Choledocholithiasis

SIR,—Murray and colleagues are to be congratulated for producing an excellent series of patients with common bile duct (CBD) stones treated by endoscopic sphincterotomy (ES), nasobiliary catheter (NBC), and methyl-tert-butyl-ether (MTBE) (*Gut* 1988; **19:** 143). There remains, however, a question mark as to its actual efficacy. Of the 10 patients treated, four passed stones spontaneously, four required further endoscopic extraction and two required surgery. The authors state that 'fragmentation' occurred in five of the patients. It would have been helpful to have had an independent observer objectively measuring degrees of dissolution or 'fragmentation' of the stones as nasobiliary cholangiography can be at times difficult to interpret. It is not enough to say that stone passage occurring spontaneously or that endoscopic extraction being easier at a second attempt should be attributed to MTBE, as this is common experience in the absence of any stone dissolution therapy.

Our own experience and that of others[1-3] would suggest that CBD stone dissolution by MTBE is liable to meet with a low success rate. There are three reasons for this: (1) MTBE will inevitably rise above bile and hence the stones. Positioning of the NBC and pre-infusion aspiration of bile is obviously important, but the contact time between MTBE and the stones will be quite small, partly because it has an extremely low viscosity. (2) Whereas the incidence of pigment stones in the CBD is around 25% in patients with gall bladders, the incidence rises to as high as 70% some 10 months after cholecystectomy.[4,5] Methyl-tert-butyl-ether will not dissolve pigment stones. (3) Mixing is very important for contact dissolution in bile;[6] the presence of a wide sphincterotomy reduces the possibility of this occurring, because of losses into the duodenum.

Problem (1) and (3) may partly be overcome by rapid infusion and withdrawal using programmed pumps,[7] but these have still to be assessed for dissolving CBD stones.

In collaboration with Mr Murray and colleagues, we have been contacting potential users of MTBE in the UK in order to obtain a general overview of the situation. We would welcome details of treatment of MTBE by anyone who has yet to be contacted.

Despite these reservations MTBE is a very useful agent for direct dissolution of stones in the gall bladder. There are, however, potential hazards and one could echo the caution expressed by Murray and colleagues regarding its indiscriminate use.

J P NEOPTOLEMOS

University of Birmingham,
Department of Surgery,
Dudley Road Hospital,
Birmingham B18 7QH.

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Reply

SIR,—Mr Neoptolemos gives three reasons why CBD stone dissolution using MTBE may be unsuccessful. Two of these potential problems can be overcome by technique while the third is population dependent. Our article stresses that NBC positioning is critical to ensure maximum chemical/stone contact. We minimise MTBE escape into the duodenum by using the NBC to pull the stone(s) downwards thus achieving a 'ball valve' effect at the sphincterotomy. Many years of gall stone analysis in our Unit reassures us that the vast majority of ductal stones in our population have a chemical composition suitable for dissolution using MTBE. This may not be the case for Birmingham.

We have now treated 16 patients with choledocholithiasis using MTBE. Complete duct clearance without surgery has been achieved in 12. In one patient a 6 cm×3 cm stone could not be extracted endoscopically but crumbled during surgery. The technique failed to alter stone composition in three patients. This experience continues to support our initial observations.

W R MURRAY

Dept of Surgery,
Western Infirmary,
Glasgow G11 6NT.

Acidic colonic microclimate

SIR,—We read with interest the article of H Vogelsang *et al* in the January issue (*Gut* 1988; **29:** 21–6). We wonder, however, if the statistical results in Table 2 are correct. The authors state that the H_2 production expressed as AUC-H2 (area under the curve of H_2) after 20 g lactulose intake after three days of pretreatment with lactulose, is significantly less ($p<0.05$) than the AUC-H2 after intake of 20 g lactulose before lactulose pretreatment.

After recalculating their figures which are given as mean (SEM), we find a value of 8523 (4355) (mean (SD)) before, and 5414 (5037) (mean (SD)) after three days' lactulose intake. As the authors mention that they used the unpaired two-tailed Student's *t* test for their statistical analysis, the pooled SD has to be calculated, which is 4708. With these values we find for T a value of 1·23, which corresponds with a p value of 0·24.

M HIELE

Department of Internal Medicine,
Service of Gastroenterology,
University Hospital Gasthuisberg,
3000 Leuven, Belgium.

Reply

SIR,—Thank you very much for your critical reading of our paper. Your calculations concerning the statistical analysis of change of AUC-H_2 after lactulose treatment are right. We have to apologise for our mistake which originated from a false asterisk written down during repeated corrections. The data – calculated on the computer – were, of course, correct and there was also a tendency of lower AUC-H_2 after lactulose treatment running parallel to the change of max-H_2, but was not significant because of the relative high variance of changes of AUC-H_2. Therefore we failed to recognise this false asterisk being seemingly logical at this position.

H VOGELSANG

1st Dept of Gastroenterology
and Hepatology,
University of Vienna,
Lazarettgasse 14,
A-1090 Vienna,
Austria.

Antibiotic prophylaxis for endoscopic sphincterotomy

SIR,—I wish to draw attention to the importance of making the correct choice of prophylactic antibiotic for endoscopic sphincterotomy (ES).

The Leicester series by Davidson *et al* (*Gut* 1988; **29:** 114–20) reports significantly higher mortality and complications in comparison with the series reported by Martin and Tweedle from Manchester.[1] In the Manchester ES series of 81 patients reported, none had septic complications and the only death was from haemorrhage. In the Leicester ES series of 106 patients reported, 19·5% had septic complications, and four of the five deaths related to ES were caused by septicaemia. Pre-existing cholangitis, however, was not statistically significant between the two series.

Gregg *et al*[2] have shown that 14 (70%) of 20 patients developed infected bile after ES even though all the patients had sterile bile previously. The predominant species were *E coli*, enterococcus, *Proteus mirabilis* and Klebsiella. Pseudomonas introduction into the gall bladder bile after ES has been reported by Neoptolomos[3] *et al.*

In the Manchester ES series, mezlocillin 2 g IV was used as prophylaxis except where antibiotic treatment had already been instituted for the treatment of cholangitis. Although not stated in the article, the authors from Leicester have used cephazolin 1 g im as prophylaxis in a larger series over the same period reported previously.[4] Although both are broad spectrum antibiotics, pseudomonas is sensitive to mezlocillin but resistant to cephazolin.

Did the authors use cephazolin im as prophylaxis in the series reported? If so, the higher mortality and complications found in their series could be attributable to this difference in choice and route of administration of the prophylactic antibiotic.

J D ARNOLD

King's College Hospital Medical School,
London.

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