

## Correspondence

### Infusion of methyl tertiary butyl ether in bile ducts of rabbits

SIR,—I was interested to read the paper from Professor Tritapepe's group (*Gut* 1989; **30**: 206–12). I feel it is important to emphasise that this work has little or no bearing on previously published human *in vivo* studies on the use of methyl tertiary butyl ether (MTBE) to treat choledocholithiasis.

The toxicity of MTBE in the extrahepatic biliary tree is directly related to the time corrected net volume exposure of the bile ducts to the chemical plus the extent of dispersal from the extrahepatic biliary tree which is itself influenced by the previously mentioned factor among others. Tritapepe's study reports continuous infusion of MTBE for 48 hours without an infusion/aspiration cycle, a technique which must maximise toxicity. My human choledocholithiasis MTBE treatment protocol results in bile duct clearance after intermittent, installation/aspiration sessions totalling eight hours (correctly expressed as 4 ml MTBE per 30 min × 4 per session × 4 sessions).<sup>1</sup> Continuous nasobiliary catheter drainage between treatment sessions also helps to control toxicity and minimises rises in the transaminases.

I have now treated choledocholithiasis in 23 elderly patients using MTBE delivered intermittently *via* a nasobiliary catheter, and 17 patients have achieved complete clearance of their bile duct stones. Post-treatment endoscopic retrograde cholangiography has uniformly shown a reduction in the size of the bile duct and subsequent biliary imaging in six patients (>six months after MTBE treatment) has failed to reveal any evidence of bile duct dilatation.

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#### Reference

- 1 Murray WR, LaFerla G, Fullarton GM. Choledocholithiasis – *in vivo* stone dissolution using methyl tertiary butyl ether (MTBE). *Gut* 1988; **29**: 143–5.

#### Reply

SIR,—We certainly agree with Dr Murray that it is unfair to extrapolate our animal data to humans treated with topical MTBE infusion. We wish to elucidate however, that rabbits received a daily MTBE dose of 1 ml/kg bw which was infused into the common bile duct (CBD) at a 1 ml/h rate. As the

body weight was 3 kg, each rabbit was given a three hour continuous MTBE infusion per day. Therefore, Dr Murray's statement that animals were given 48 h MTBE infusion is incorrect. Referring to CBD dilatation in our two patients, we cannot exclude a fortuitous coincidence. As reported in the article,<sup>1</sup> one case increased CBD volume (+19.6%) *v* pre-treatment whereas the second one exhibited a reduction (–27.7%) which was minor compared with the three patients treated by saline flushing (mean decrease –88.5%). In view of this experience, we have replaced MTBE by a MTBE/ monoctanoin mixture (1:2; *v*:*v*). Preliminary findings suggest that this mixture is effective and well tolerated.<sup>2</sup>

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#### References

- 1 Tritapepe R, Pozzi C, Caspani P, Di Padova C. Unexpected dilatation of the common bile duct after methyl tertiary butyl ether (MTBE) in rabbits. Possible implications to findings in man. *Gut* 1989; **30**: 206–12.
- 2 Tritapepe R, Pozzi C, Caspani P, Di Padova C. Successful treatment of retained common bile duct (CBD) stones by a combination of methyl tert-butyl ether (MTBE) and monoctanoin (Mo). [Abstract]. *Hepatology* 1988; **8**: 1368.

### Maalox versus cimetidine

SIR,—I have read with interest the paper presented by Dr Bardhan and his colleagues (*Gut* 1988; **29**: 1748) in which it is concluded 'Maalox TC three tablets bd are as effective as cimetidine 400 mg at bedtime in reducing DU relapse and both are superior to placebo'.

The authors base their view on measurements in evaluable cohorts of respectively 43/62 placebo recipients, 42/65 Maalox HS, 43/60 Maalox bd and 48/64 cimetidine takers. As in all clinical trials we need to be sure that the evaluable cohort fairly measures outcome. The authors are aware of this problem and so in their Tables (Table 4) postulate conclusions as if for instance all excluded patients remained ulcer free, and alternatively if all had relapsed.

They do not consider treatment withdrawals as failures, yet no treatment can be considered successful if patients cannot take it. There were 26 such withdrawals (see Table 5). Their inclusion as treatment failures gives rather a different slant to the prime analysis (see Table over page).