Laparoscopy explosion hazards with nitrous oxide

Sir,—We apologise for the delay in replying to the letter of Drs G B Drummond and D B Scott (6 March, p 586), which was caused by illness.

We find ourselves in agreement with Mr P C Steptoe (3 April, p 833) concerning the inadequacies of the measurements made by Drs Drummond and Scott and especially concerning the justification of their conclusions. We regret the lack of experimental detail about the sampling, analysis, and calibration procedures used, which prevents any assessment being made of the validity of their work.

That hydrogen, in a standard mixture with methane and nitrogen, could be stored in a pressurized glass syringe closed with a polyethylene tap for 10 days, or even two days, without any significant loss was very surprising to us because of the well-documented high diffusion coefficients in most materials, including lubricants and polymers. In fact, we would have expected no loss to have occurred during storage only if the mixture had been stored in a thick-walled glass container. During recent attempts to analyse intestinal gas we found that the results were quite unreliable unless the samples were analysed within four hours, using a scanning mass spectrometer. Without the experimental figures we are unconvinced by the claims of Drs Drummond and Scott about hydrogen losses and consequently sceptical about their values for hydrogen concentration in their samples.

However, we must agree with Mr Steptoe that samples from 12 laparoscopies is a small number and especially that nitrous oxide usage is likely to be dangerous when bowel puncture occurs (at least 2 of cases according to Mr Steptoe) using high-frequency electric diathermy. Similar criticisms about the numbers of cases reported by Drs S Khunda and K Y Ghanina (8 May, p 1147) can be made (28 cases using diathermy).

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The community physician of the future

Sir,—Your editorial description (24 April, p 976) of the training of the community physician of the future carries the extraordinary assumption that his or her postgraduate education is available only in England. No mention is made of what goes on in the four Scottish medical schools, which are playing, as they have done for 50 years or more, a very considerable role in the new venture of community medicine no less than in the older discipline of public health considered adequate but that many other children may be protected.

Finally, there are four recent studies including our own (which is randomised and prospective with a concurrent control group), which do show the effectiveness of daily phenobarbitone in the prevention of febrile seizure recurrences.

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Failure of phenobarbitone to prevent febrile convulsions

Sir,—The article by Dr J Z Heckmatt and others (6 March, p 559) contains, we believe, both misleading conclusions and faulty reasoning.

The recurrence rate of febrile convulsions was 8.2%, in the group treated with continuous phenobarbitone and the control group, with an observation period of six months. A reduction in recurrence rate to 43%, of that in the controls appears clinically important but is not statistically significant when one uses a two-tail test at the 5% level. When one sees what may be a clinically important effect which does not attain statistical significance it would seem inappropriate to declare this as proof of no treatment effect. If the same rate of recurrence were to prevail the results would have been declared significant with only 26 additional subjects in each group. With the observed rates the results would also have been significant. In 88 subjects in the phenobarbitone-treated group had satisfactorily completed the trial. Thus the authors were not far from reaching a conclusion opposite to that claimed in the title of their paper. It is interesting to note that if their present data are tested with only one tail they are significant at the 5% level.

The authors argue that the recurrence of febrile convulsions in some children whose phenobarbitone levels are in the therapeutic range proves the ineffectiveness of this drug.

We disagree and think that this proves only that some children may not be protected against febrile seizure recurrences by phenobarbitone because the phenobarbitone level is not adequate to prevent febrile convulsions. The usual meaning of a failure to be statistically significant is that the result was biased by chance alone. The rule of thumb is: if the result is not statistically significant the result is probably within the realm of chance. If the result is significant at least 5% of the time because of chance alone it is probably within the realm of chance. The result of our study is that 88 children in this trial (87 children in the phenobarbitone group) were not protected by the treatment. It is therefore important to note that the result was biased by chance alone.

The suggestion that a statistically insignificant reduction in recurrence rate would become significant with increased numbers is dangerous on two grounds. The first is illustrated by an experiment in which there was an insignificant excess of heads after a series of coin tosses. The argument of Drs Wolf and Forsythe would have it that if the same rate of recurrence were to prevail a larger number of patients would show that the coin was biased to fall down heads.

The second objection relates to the suggested inclusion for statistical purposes of those who did not satisfactorily complete the trial. Half of these (18%, of those offered treatment) should not have been included in the analysis because the family could not tolerate the side effects. In identical manner Thorn found that 21% had to discontinue phenobarbitone because of side effects.

If phenobarbitone does not prevent febrile convulsions but reduces the incidence (as Wallace and Thorn have suggested) then we would expect a kind of dose-response curve—the higher the blood level, the lower...