An open multicentre monitored release study was conducted by 85 cardiologists and physiologists in order to assess the safety and efficacy of perhexiline maleate under conditions of ordinary wide-scale use in hospital clinical practice. Patients with angina pectoris were treated for periods of up to six months and liver function tests (serum aspartate aminotransferase, serum alanine aminotransferase, alkaline phosphatase, serum bilirubin) were carried out at monthly intervals. Angina attack rate, trinitrin tablet consumption, side effects, and concomitant treatment were also recorded.

A total of 363 patients received treatment with perhexiline maleate for a mean duration of 4.2 months. Their average age was 59.8 years and the mean number of anginal attacks recorded before treatment began was 95 attacks per month. Concomitant treatment during the study with beta-adrenoreceptor blocking agents was received by 32%, of patients, while 34%, received a wide variety of other drugs.

Thirty patients showed some abnormalities of liver function tests during perhexiline maleate therapy and as a result seven were withdrawn from further treatment. Variable increases of serum transaminases were evident in all the 363 patients, which reverted towards or to within the normal range when perhexiline maleate was withdrawn. No case of jaundice was observed.

Side effects, predominantly nausea and dizziness, were frequent during the first month of treatment, leading to withdrawal of 49 patients, but most of these effects persisted only for one month or less. Significantly more patients experienced side effects following a dose of 400 mg perhexiline maleate daily than 200 mg daily. No case of peripheral neuropathy was observed during the study, at a time when 100 patients had completed six months' treatment.

The efficacy of perhexiline maleate was demonstrated by a mean reduction of 60%, in the number of anginal attacks per month after one month's treatment, and in subsequent months by a reduction of 70-75%. Complete suppression of angina was reported by 24%, of patients and 73%, reported a decrease of 50%, or more of their attacks. The response of patients receiving concomitant treatment with beta-adrenoreceptor blocking agents was similar to that of those receiving only perhexiline maleate. There was no evidence of any action phenomena between perhexiline maleate and any other drug. Trinitrin tablet consumption correlated closely with the angina attack rate.

The detailed results of this study will be published in full elsewhere.

J D F LOCKHART
H C MASHITER

Medical Department, Merrell Division, Richardson-Merrell Ltd, Slough, Berks

Intermittent claudication

Sir,—We were interested to read your leading article on this subject (15 May, p 1165), which emphasized that most patients who experience this symptom can be treated conservatively and kept under observation. We would like to make the point that simple clinical follow-up is often inadequate because a patient's own assessment of his disability, especially his walking distance, is unreliable. The walking distance can be measured objectively on a treadmill under standard conditions.

We have found that when the maximum walking distance attained by patients on the treadmill is plotted against their claimed distance there is no correlation (see figure). It is interesting to note the number of patients who quoted 100 m. We have also found that when patients are tested several times over a period of a few months the results show a variation of only 10%.

Long-term observation is the mainstay of management for most claudicants; the maximum walking distance achieved on a treadmill together with ankle pressures measured using ultrasound are simple objective methods of following up these patients. Genuine deterioration in his walking ability can be measured and the surgeon's decision on who needs reconstructive surgery and when is made easier.

MARTIN THOMAS
C QUICK

Biomedical Engineering Department, King's College Hospital Medical School, Dulwich Hospital, London SE22

Laparoscopy explosion hazards with nitrous oxide

Sir,—We should like to reply to the criticism by Professor J S Robinson and others (22 May, p 1277) of our letter about laparoscopy explosion hazards with nitrous oxide (6 March, p 586).

The method that we used was as follows: samples were taken, as stated, at the end of 12 laparoscopy cannulae, with the telescope in place. The effective dead space of the gas passage is about 5 ml. At least 50 ml of gas was withdrawn and discarded from the gas port before the samples were taken, in duplicate, into glass syringes lubricated with a thin film of silicone grease. Such syringes are commonly used for sampling blood for blood gas analysis. The syringes were sealed with the sterile disposable polyethylene tap that was used to connect them to the gas port of the cannula. All the gas samples were analysed for hydrogen and methane within 48 hours of collection.

Fifteen ml samples were introduced through a rubber septum 15 cm from the column, then argon was used as the carrier gas, and a hot wire detector was used. Calibration was carried out with a standard cylinder-stored mixture of 0.5% hydrogen and 1% methane in nitrogen. Such concentrations are appropriate if gas compositions approaching explosive proportions are anticipated. This analysis system has been used by the National Coal Board Area Laboratories in Edinburgh for 15 years for routine analysis of hydrogen and methane. A sample syringe was filled from the cylinder of standard gas and stored at room temperature for 10 days. At the end of this time no difference could be detected between the composition of the sample in this syringe and that of a sample freshly drawn from the cylinder of standard gas.

On analysis of the gas samples from patients no methane was detected. In one syringe hydrogen was detected at a concentration of 20 ppm, but none was detected in the duplicate.

Our intention was to assess the assertion by Professor Robinson and his colleagues (27 September 1975, p 764) that "virtually the abdominal cavity itself must contain large concentrations of hydrogen and, probably in many cases, methane." They suggested that gas mixtures of explosive concentrations must be present in the abdominal cavity during laparoscopy with nitrous oxide. These assertions, which are based only upon deductions from the physical properties of the gases and not from any actual measurements, are not supported by our results.

It is impossible to produce, without analysis of gas from each and every case, that explosive concentrations of bowel gases will never occur during laparoscopy with nitrous oxide, nor did we suggest that our data support this contention. We are in agreement with Mr P C Steptoe and Mr J D Martyn (8 April, p 241) that the explosion of nitrous oxide in the peritoneal cavity may be consequent upon accidental puncture of the bowel, and this is what we suggested in our original letter. However, our experience is that the incidence of explosion, whatever the incidence of bowel puncture may be, is so far zero. Laparoscopy using nitrous oxide as the inflating gas has been carried out in one unit of this hospital since 1972. More than 400 procedures have been carried out each year and about 70% of these have been for tubal diathermy. No explosion or fire has occurred so far. We would continue to suggest that explosion is not a significant hazard in laparoscopy of short duration when nitrous oxide is used.

G B DRUMMOND
D B SCOTT

Department of Anaesthetics, Royal Infirmary, Edinburgh.


**This correspondence is now closed.—Ed, BMJ.**