CORRESPONDENCE

REMOVAL OF ANAESTHETIC AGENTS VIA THE THEATRE SUCTION UNIT AND ITS FUNCTIONAL ANALYSIS

Sir,—The potential dangers of prolonged or repeated exposure to anaesthetic agents have been well documented (Editorial, 1972). Commercial devices are now being produced to vent the expired anaesthetic agents from the anaesthetic circuit. Some simple devices have also been produced which depend on venting the expired gases to atmosphere (Sniper and Murchison, 1972).

My colleagues and I have been using an inexpensive and simple device to remove the exhaust gases from the BOC Heidbrink valve.

A disposable plastic airway (Portex) cover is cut in the following manner. One end is opened and the airway removed, the distal end is cut in a diagonal manner to allow the catheter mount to pass. The suction tubing is passed inside the plastic cover close to the BOC Heidbrink valve. Two small pieces of adhesive strapping will ensure a reasonably airtight fit. The method of construction is shown in figure 1.

FIG. 1

The advantages of this method are as follows. It is inexpensive and is effective. The device uses existing theatre facilities and is disposable, thus avoiding possible risks of contamination and spread of infection to other patients. There is no cumbersome tubing to drag on the anaesthetic circuit and the expiratory resistance should not be increased above that of the valve. The valve continues to operate normally, it can be adjusted in use without disconnection and can be seen to operate through the clear plastic cover. The device can also be adapted to fit other expiratory valves, for example Ruben’s valve.

Owing to the design of our hospital suction unit, the exhaust anaesthetic gases are extracted and vented straight to atmosphere. This unit consists of an “in-line” horizontal opposed suction pump and is used for our two theatres only, the rest of the hospital being served by portable suction apparatus.

An electric motor drives the suction unit. This is completely separate from the motor and thus there is no risk of explosion with explosive anaesthetic agents. The dilution effect on exhaust anaesthetic gases would help in this respect, further minimizing this risk.

It has been pointed out that prolonged and excessive use of the suction unit may result in inefficient lubrication due to dissolved anaesthetic agents in the oil and thus increased wear. This is a problem, but it can be minimized if the maintenance as laid down by the Ministry Service Schedule (PMG/13 Section M19) is followed. We have not found this to be a problem during the eight months we have been using this method.

Extraction efficiency.

A Hook & Tucker halothane analyser was used to measure the anaesthetic concentrations in the circuit, and thus to determine the extraction efficiency of the device. The calibration of this analyser was first checked using an anaesthetic machine delivering an 8-litre flow through a Mapleson “A” circuit, and an accurate “Vapor” vaporizer. With the suction device fitted and using a similar Mapleson “A” circuit with a fresh gas flow of 8 litres per min, the halothane concentration, delivered from a Fluotec Mark III vaporizer set at 1.0%, and measured in the anaesthetic tubing between the expiratory valve and the reservoir bag, was 0.9%. Under similar conditions, the halothane concentration at the BOC Heidbrink valve was 0.8%. No measurable readings were obtained on the analyser when it was placed close to the expiratory valve but outside the plastic cover of the suction device, although without the device in situ the concentration close to the valve was 0.4%.

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REFERENCES


INTERACTION BETWEEN CHLORDIAZEPOXIDE AND PROPANIDID

Sir,—I wish to report a possible effect of the prolonged administration of chlordiazepoxide on propanidid anaesthesia in a Nigerian patient.

A 32-year-old Nigerian female weighing 52 kg underwent a minor gynaecological procedure under i.v. propanidid anaesthesia. For about 18 months she had been taking chlordiazepoxide 10 mg twice daily and methyldopa 250 mg twice daily for arterial hypertension. One month before the operation, she discontinued methyldopa but continued to take chlordiazepoxide 10 mg once daily. Immediately before operation her arterial pressure was 130/80 mm Hg and her general condition was satisfactory.

She was given atropine sulphate 0.6 mg intravenously as premedication and was then placed in the lithotomy position. It was planned to give her an initial dose of propanidid 500 mg, but after administration of the first 100 mg, it was discovered that the needle had pierced the vein and that the next 50 mg of the drug had been injected into the tissues around the vein. Before another vein was found, the patient became unconscious and the surgeon was asked to proceed with the operation. The needle was reinserted into another vein, but no further drug was given because the patient did not react to the
surgical stimulus. The procedure lasted 8 min. During anaesthesia her arterial pressure was approximately 100/80 mm Hg and ventilation was adequate. She remained unconscious for about 20 min. The postoperative course was otherwise uneventful.

The liver function tests performed the following day revealed no liver dysfunction and the serum urea concentration was 28 mg/100 ml.

It is well established that patients on prolonged administration of chlorpromazine develop tolerance to the soporific effects of the agent, and this may cause cross tolerance to the action of i.v. barbiturates (Dundee, 1955). About 1% of patients on chronic administration of chlorpromazine are also known to develop liver dysfunction of the intrahepatic obstructive type (Sherlock, 1962). This can result in prolongation of the action of opiates, and of barbiturates (Dripps et al., 1955; Dundee, 1957). There is no evidence that chlordiazepoxide causes liver dysfunction nor has it been reported to cause iatrogenic disease which will affect propanidid anaesthesia. However, it is known that this drug is a cerebral depressant and that daily administration causes cumulative. Wylie and Churchill-Davidson (1972) listed chlordiazepoxide as an agent that could cause marked prolongation of thiopentone anaesthesia. In view of the lack of information about hypersensitivity to propanidid anaesthesia of patients on chronic administration of chlordiazepoxide, I would be interested to learn of other readers’ experience.

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REFERENCES

INDWELLING VENOUS CANNULA IN THE RAT
Sir,—Since our anaesthetic experiments have been aided by the brief letter of Hey and Pleuvry (1973) on oral intubation of the rat, we hope that the research of others might benefit similarly from a description of our technique of short-term venous cannulation in the rat. Repeated drug injections are an essential part of our studies, but we found the surgical implantation of chronic catheters very time-consuming to perform. Also we wished to avoid anaesthetics other than those under test.

The recent availability of smaller sizes of catheter-over-needle insertion sets (22 gauge x 1"; Argyle Medi-