A SIMPLE SUCTION APPARATUS

Sir,—The availability of suction apparatus is an essential part of anaesthetic practice. We have devised a simple suction system which operates on the venturi principle (fig. 1). The system may be assembled from individual parts which are usually available in the operating theatre. These consist of:

A—A rubber tube (5 cm diameter) obtained from a discarded endotracheal tube. B—A nozzle which comprises the applicator provided with topical lignocaine anaesthetic. C—Anti-static rubber tubing with adaptor. D—A 16-gauge needle. E—A suction catheter.

The connections at A, B and C are rendered airtight and the needle (D) is inserted into the lumen of the tube (A) at a distance of 3 cm from the tip. The connection at the end of tube (C) is inserted into the emergency oxygen supply provided for the close circuit of the Boyle's machine and this provides a pressure of approximately 27–42 kPa. Alternatively, more powerful suction may be obtained by attaching the end of tube (C) to the central oxygen pipeline supply which provides a pressure of 414 kPa and thereby creates a negative pressure of up to 40 kPa.

This device is simple, cheap and provides suction when all other sources have failed.

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Fig. 1. Diagram of suction apparatus.

WORLD CONGRESS OF INTENSIVE CARE

Sir,—I believe your Editorial (1977) on the World Congress of Intensive Care reflects needless concern about the attitude of the World Federation for Societies of Intensive and Critical Care Medicine towards anaesthesia in general and the Association of Anaesthetists of Great Britain and Ireland in particular. It is important to reassure the specialty by outlining the current situation. About half of the 70 societies from approximately 50 countries which are actively interested in the Federation are anaesthetic societies, the remainder being mostly multi-specialist intensive care or critical care societies (I avoid the term multi-disciplinary as it is not universally interpreted in the same way and this, initially, caused confusion at the Federation Assembly meetings in Paris).

The Constitution Advisory Committee, elected by the official delegates of most of these societies, has only just started its work. No recommendations have been made on which societies will be eligible for Membership of the Federation. Speaking in a purely personal capacity (I must emphasize this), I feel sure the Federation will aim to embrace all societies with an active interest in intensive care, whatever their primary purpose, including the single-specialty as well as the multi-specialist intensive care or critical care societies. To attempt to create a World body in this field without including anaesthetists (who are in any case already a major part of the Federation) would be not only completely unrealistic, but also contrary to the spirit and purpose of the Federation. Indeed, it is gratifying that one or two important anaesthetic societies which were initially strongly opposed to the concept of the Federation at the time of the First World Congress on Intensive Care, complained they had not been invited and demanded an active role in its formation during the second congress.

My initiation of the Intensive Care Society, the First World Congress on Intensive Care and the Federation would, in fact, have been quite impossible and could not have succeeded without the vital contribution and support of colleagues in the specialty.

Nevertheless, I share your view that despite the very significant, even dominant, role anaesthetists have played in the development of intensive care, its “capture” by this specialty will hinder its future advance. For this reason I believe the Federation, too, must avoid complete subservience to the anaesthesia societies.

The multi-specialist societies are forums for national intercourse, and their number is increasing rapidly. One day they may represent fully the intensive care aspect of the work of anaesthetists and other specialists, but this is looking well into the future.

I share your view that no individual can, himself, be a multi-specialist, though some of our Australian colleagues believe otherwise. Such a person would have to be an intellectual and technical giant, a medical Superman. For the patient's sake, it must remain multi-specialist team work.

A Bulletin describing the current situation of the Federation and listing its associated societies will be published in a future issue of both Intensive Care Medicine and Critical Care Medicine. This list includes the Association of Anaesthetists which, like the other societies, nominated delegates to the Federation Assembly meetings in Paris in September 1977.
Finally, unless the World Federation of Societies of Intensive and Critical Care Medicine can attract the support of all who work in Intensive Care, whatever their speciality, it is doomed to failure. Anaesthetists are not merely invited; in my view, they are essential.

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REFERENCE


Awareness during anaesthesia

Sir,—The recent article on “Awareness during anaesthesia” (Agarwal and Singh, 1977) and an earlier one (Brice, Hetherington and Utting, 1970) may lead anaesthetists to the conclusion that this risk is remote with a properly given unsupplemented nitrous oxide in oxygen anaesthetic and so must be virtually non-existent when narcotic supplements are used. Our impression, which is supported by others (McKenna and Wilton, 1973), is that awareness occurs more frequently than is acknowledged generally.

The following is a recent example:

A man aged 59 yr (weight 87 kg) was undergoing resection of an aortic aneurysm and insertion of a Dacron graft. He suffered from ischaemic heart disease and was being treated with digoxin, diuretics and potassium supplements. He had received no other medication and did not drink alcohol. Premedication was not given and anaesthesia was induced with papaveretum 20 mg and thiopentone 250 mg i.v. and tubocurarine 50 mg was given for myoneural blockade. The lungs were ventilated with 70% nitrous oxide in oxygen using a Blease ventilator with a frequency of 12 b.p.m., and at no stage was air entrained or the reservoir bag overdistended. Over the next hour, the patient showed clinical signs of lightness of anaesthesia by frowning and making minor limb movements. Supplements of thio-pentone and papaveretum were given to a total of 150 mg and 20 mg respectively, bringing the overall dose of thiopentone to 40 mg in 90 min.

After operation the patient stated in reply to questioning that he had been aware of the abdominal incision, which had been made 30 min after induction of anaesthesia. He could recall some rather emphatic words spoken about half an hour later by the surgeon. He had no recall of endotracheal intubation. Anaesthesia was maintained with 12 litre min⁻¹ of 66% nitrous oxide in oxygen using a Blease ventilator with a frequency of 12 b.p.m., and at no stage was air entrained or the reservoir bag overdistended. Over the next hour, the patient showed clinical signs of lightness of anaesthesia by frowning and making minor limb movements. Supplements of thiopentone and papaveretum were given to a total of 150 mg and 20 mg respectively, bringing the overall dose of papaveretum to 40 mg in 90 min.

There were no further episodes of awareness during the remaining 3 h of the operation, although the patient was deemed not to need any further narcotic supplements throughout this time. During the operation arterial blood was analysed: $P_{O_2}$ 18.87 kPa and $P_{CO_2}$ 4.49 kPa. Though he had felt the incision, the patient was emphatic that there had been no pain, and that he did not find the experience distressing. This may have been the result of the cortical depressive effect of the opium alkaloids.

As fentanyl and phenoperidine do not possess this property to such a degree (Edmonds-Seal and Prys-Roberts, 1970), we suggest that these older drugs may be more suitable to supplement nitrous oxide in oxygen anaesthesia when volatile agents or other drugs are contraindicated. In the unfortunate event of the patient being aware, there would be less risk of distress from the experience. The post-operative drowsiness which usually follows the use of papaveretum or morphine would be a contraindication to their use in certain circumstances.

It is of interest to note that there has been no recorded instance when a patient has complained that he felt cold whilst aware during anaesthesia, and this applies in the present case. This is somewhat remarkable in view of the frequency and occasional severity of this symptom soon after regaining consciousness at the end of anaesthesia. It would seem that temperature sensation is obtunded, even when anaesthesia is inadequate.

Even more worrying is the recent medico-legal development (Annual Report, 1977) that, should the patient become aware during anaesthesia, the anaesthetist may be called to account, even though the anaesthetic was apparently conducted with due care.

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References


Disposition of pethidine in childbirth

Sir,—We read with interest the work of Hogg and colleagues (1977) on the urinary excretion of pethidine by the newborn of mothers receiving this agent during labour. These authors studied three facets of this subject: the accumulation of pethidine by the foetus, the neonatal metabolism of pethidine and the elimination kinetics of pethidine in the newborn, and they used a number of extrapolations to arrive at the results quoted. However, these three topics are more directly addressed by analysis of appropriate blood samples, coupled with a complete analysis of the urinary metabolites of pethidine in the newborn, and we write to draw attention to our work (Caldwell, Notarianni and Smith, 1977; Caldwell et al., 1977) in this area.

Analysis of samples of umbilical cord venous and arterial blood and maternal venous blood taken at delivery from 40 mothers showed that the concentrations of pethidine in each were dependent on the dose–delivery interval. The cord/mother concentration ratio increased from 0.6 at 20 min to 2.5 at 480 min, indicating that the foetus is able to concentrate pethidine relative to the mother. The ratio was always greater than 1 when the dose–delivery interval exceeded 160 min.

Using a sensitive and specific assay involving gas chromatography and mass spectrometry, we have measured pethidine in serial blood samples taken during the first 48 h of life, and from this have determined the elimination half-life of pethidine in 40 babies. The mean value was 18.1 h (SEM ± 2.9 h, range 7.0–36.1 h).