sitting position during and after injection and increasing the anaesthetic volume from 3 ml to 4 or 5 ml. In the textbook by Lund, *Principles and Practice of Spinal Anaesthesia* [2], hypobaric techniques with volumes up to 20 ml injected with the patients in a sitting position are recommended for upper abdominal surgery because of the accurate control of the spread of the solution in the subarachnoid space.

Sienstra and co-workers [3] demonstrated in their excellent study that with a solution of 0.5% plain bupivacaine warmed to 37 °C, thus decreasing its baricity (0.9990 at 37 °C), and injected in 15 s with the patients sitting during and for 3 min after the injection, a significantly higher cephalad spread was achieved, with less variation in the level of analgesia than after use of a solution at room temperature. In our present study we wished to investigate if the same effect would result with a bupivacaine solution that was made hypobaric by diluting it with water and injecting it at room temperature. The volume used, 3 ml of 0.5% bupivacaine +5 ml of distilled water (baricity 0.9927 at 21 °C), was significantly smaller than that recommended in Lund's textbook. The sitting period, 40 s for injection and 2 min after it, was shorter than in Sienstra's study. Otherwise, a design similar to that in Sienstra's study was planned.

We appreciate conventional teaching in addition to the concepts learned from development of clinical anaesthesia. We are sorry that we could not include older references in the text, mainly because of editorial reasons. Because the aim of our study was to elucidate the properties of bupivacaine, we referred only to the most recent papers.

It is evident that the optimal solution of bupivacaine for spinal anaesthesia is still unknown and modifications of the existing solution have to be considered in future research.

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REFERENCES

BLIND NASAL INTUBATION THE ONLY OPTION?

Sir,—Experience of blind nasal intubations in patients similar to that described by Dr Suresh [1] suggests that the tracheal tube (or fibrescope) should always be inserted through the nasal passage on the side opposite to the mass. There may be little relation between the swellings externally and internally. The pharynx may be normal, or the ipsilateral pharyngeal wall may bulge towards or even across the midline, and thereby interfere with or prevent a tube (or fibrescope) inserted through the nose on the same side from approaching or entering the glottis. Other potential risks include trauma or perforation of any internal mass, with release of pus, initiation of bleeding, or the creation of a false passage. It would also seem mandatory to insert a cuffed tracheal tube in all such cases of trismus to protect the airway in the absence, and until the introduction, of a pharyngeal pack. Airway management should anticipate the worst scenario because laryngoscopy may reveal nasty surprises!

The following example allowed no such latitude: after several serious bleeding episodes, a 16-yr old youth required exploration of a shotgun injury to the left face (involving mouth and pharynx) sustained and debrided surgically 6 days earlier. Following preoxygenation by mask, the patient was positioned steeply head-down and cricoid pressure applied with a thiopentone-suxamethonium induction. As laryngoscopy was performed, massive bleeding occurred, filling the pharynx, mouth and nose and rapidly forming a pool on the floor. As suction would not have helped, the only immediate available option for ensuring and protecting the airway and the patient's survival seemed to be blind intubation. This was unsuccessful with the tracheal tube alone, but was achieved with a stylet curved cuffed tube pernasally [2]. The left external carotid artery was ligated, tracheotomy performed, and the wound and pharynx packed firmly, but heavy bleeding persisted. On re-exploration, a large perforation of the right common carotid artery was found and repaired.

It should never be said that blind nasal intubation is unsuitable or unsuccessful unless it has been tried. Tracheal intubation may be surprisingly easy, as Dr Suresh notes [1], even with what appear to be rather difficult intubation problems [3].

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DOMICILIARY OXYGEN CONCENTRATORS IN ANAESTHESIA

Sir,—The article by Wilson, Van Heerden and Leigh [1] describing the use of oxygen concentrators for preoxygenation during drawover anaesthesia was a very useful addition to the literature. We shall certainly add a black bin-liner to our Tri-service Anaesthetic Apparatus! However, I should like to point out that the formula proposed is not as original as the authors imply, and is a simple modification of the equation described originally by Mackie [2]. In addition, Mackie investigated other variables affecting the FiO₂ in a drawover system which are not discussed by Wilson and colleagues and are important in the application of the formula, namely, ventilator frequency, I:E ratio and reservoir size. It is necessary, therefore, to point out that the formula is an approximation only, particularly when considering that, without direct measurement, one cannot rely on either the FiO₂ or the flow rate delivered by the oxygen concentrator.

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