lowest arterial pressure necessary to produce maximal effects on blood loss is about 90–110 mm Hg. Any decrease in arterial pressure to less than this value increases anaesthetic morbidity and mortality without improving operating conditions.

The literature on blood loss and arterial pressure contains many assumptions and deductions based on inadequate data. The most misleading assumption is that arterial pressure is a major factor in producing surgical bleeding. However, any critical reading of the literature on blood loss reveals two factors which are common to all carefully conducted series. The first is that the blood loss varies widely and the second is that hypotension to a systolic pressure of 60 mm Hg reduces blood loss on average by 50%. This suggests that some patients bleed extensively during surgery, while others bleed to a small extent, and the reasons for this phenomenon are largely unknown. Orthadox hypotension reduces bleeding by only 50%, which is small when the influence of the other unknown factors are considered. In my own series (Donald, 1969), the range of blood loss at pelvic floor repair was 32–1200 ml, which is fairly representative of all studies. Dr Kerr’s study also suggests that arterial pressure is not a major factor in reducing bleeding, as there was a failure rate of up to 39.3% depending on the patient’s age, despite very low arterial pressures.

Dr Kerr would make a significant contribution to the literature on this subject if he would measure blood loss and relate it to different arterial pressures, and include a control group whose arterial pressure is unchanged. I suspect that he would find that many patients exhibit good operating conditions with normal or near normal arterial pressures.

The real challenge in this field lies in defining these other unknown factors, with a view to reproducing the relatively bloodless field which occurs so commonly without any interference from the anaesthetist.

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REFERENCES

Sir,—Dr Donald’s paper and remarks are applied to this type of micro-surgery, where blood loss is so small that it can be discounted. I fully agree that to a large extent there is a relationship between blood loss and arterial pressure, but this applies only to “open” surgery, and Dr Donald’s paper and remarks are applied to this type of operation. Unfortunately, these circumstances do not apply to micro-aural surgery, since microscopic “bleeding” appears to continue with little abatement at arterial pressures as low as 50 mm Hg. We have observed various techniques in a few other centres and we are convinced that the haemostasis produced by our method is superior to any other.

Although only 700 patients were described in my publication (Kerr, 1977), over the past 12 years I have used the technique on nearly double this number, with similar results and no complications. Physiological studies were carried out on several of the patients by Professor D. G. McDowall (personal communication). E.g. monitoring, arterial and jugular bulb blood samples for measurement of oxygen content and lactate/pyruvate ratios showed that brain oxygenation was being maintained adequately even at systolic arterial pressures as low as 20 mm Hg. Peripheral blood flow is always observed carefully and it is evident that this continues normally in spite of the supposedly tiny venous capillary pressures. That all these patients have survived this technique unscathed, together with the physiological measurements described above, suggests that so-called orthodox opinion was changed regarding induced hypotension, and that our previous assumptions may be erroneous. It is my belief that complications, reported elsewhere, have occurred as a result of hypotension in conjunction with controlled ventilation. This would seem to constitute a dangerous combination even at the expert hands of Barron (1976).

Dr Donald is correct when he points out that the failure rate is high in some age groups. I make no claim that my technique is perfect and I am constantly modifying it to try to obtain more consistent results, and to render it as safe as possible. However, when it works well it produces the driest field we have seen with apparent absolute safety.

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REFERENCES

AN UNUSUAL CAUSE OF RESPIRATORY OBSTRUCTION

Sir,—Anaesthesia is requested frequently for patients with a foreign body in the respiratory tract. However, in the following case report, I was confronted by a foreign body complicating anaesthesia.

A 24-yr-old Indian woman presented with bilateral breast abscesses. Examination before anaesthesia revealed no other abnormalities. Premedication comprised atropine 0.6 mg i.v. and this was followed immediately by 250 mg of thiopentone 2.5%. When loss of consciousness occurred, 0.6 mg i.v. and this was followed immediately by 250 mg of thiopentone 2.5%. When loss of consciousness occurred, the respiratory tract became obstructed despite attempts to turn the head to one side and protrude the mandible. An oropharyngeal airway was inserted, with no improvement. Laryngoscopy was performed, which showed the oropharynx was full of pieces of betel-nut (or pan–supari, as it is termed in India), which were removed laboriously with a Magill forceps. After the oropharynx was cleared of foreign bodies, the lungs were inflated with oxygen and subsequently anaesthesia was uneventful.

In India it is a common practice to chew continually a betel-leaf with tobacco and nuts. Therefore it is desirable to inspect the oral cavity before administering anaesthesia. It is hoped that this case may illustrate the potential dangers of addiction to betel-nut chewing in the Indian population.

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