Sodium bicarbonate

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**FIG. 1.** Amount of sodium bicarbonate 1 mol litre\(^{-1}\) and Mylanta-II solution required to neutralize 30 ml of gastric juice with pH 1.1 from a patient with cerebral aneurysm.

in vitro test. This could explain acid pulmonary injury in patients who aspirate even after the administration of antacid. Our most recent study (Toung and Cameron, 1979) demonstrates that routine administration of cimetidine before operation can reduce gastric acidity very effectively and may be helpful in avoiding aspiration pneumonia following anaesthesia. However, we still feel the most appropriate action is to exercise all precautionary measures at the time of induction, in addition to the administration of an appropriate prophylactic agent.

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**I.V. EQUIPMENT DESIGN AND INFECTION**

Sir,—Dr Peters and his colleagues (1979) have raised an important point about i.v. catheters. In this context of equipment design, is it perhaps not time to take a serious look at the most common and dangerous complication of long-term i.v. equipment, namely infection? Whilst careful techniques and perhaps the use of heparin (Bailey, 1979) can greatly reduce the frequency of this problem, it is not avoidable entirely. Taps may constitute an open invitation to bacterial entry to the circulation and are a particular hazard (Dryden and Brickler, 1979; Walrath et al., 1979). Should we avoid their use whenever possible, and use the much older technique of direct injection into a rubber connection since, unlike a tap, this is a surface which can be sterilized easily and quickly? Perhaps manufacturers should be asked to turn their attention to the design of a new type of device for the intermittent and completely sterile i.v. administration of drugs.

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**DELAYED BLOCKAGE IN AN EXTRADURAL CATHETER**

Sir,—A 24-yr-old primigravid woman was given extradural analgesia for moderate systemic hypertension (diastolic pressure 90-100 mm Hg) and slight proteinuria. The Lee catheter was inserted through a disposable Tuohy needle at the L3—4 interspace and 3 cm placed in the extradural space. A test dose of 1.5% plain lignocaine 2 ml was followed by a dose of 10 ml. A satisfactory decrease in arterial pressure and good pain relief resulted. Forty minutes later, 0.375% plain bupivacaine 10 ml was administered. About 75 min later it was impossible to inject any solution through the catheter despite withdrawing it incrementally by 2 cm. On removal it was revealed that the side holes of the Lee catheter were sealed by blood clot (fig. 1). A new catheter was placed at L2—3, satisfactory extradural analgesia achieved and labour progressed uneventfully thereafter.

**Fig. 1.** Extradural catheter with cm scale.

As the first catheter had allowed the free passage of 2 ml, 10 ml and 10 ml boluses of drug in a period of 1 h, it is possible that the haemorrhage which caused blockage occurred after this time. The movement of the patient in bed may have caused the tip of the catheter (which is smooth, rounded and with no end-hole) to rupture a vessel in the extradural plexus of veins.

Recent correspondence (Galloon, 1978; Scott, 1978; Rees and Rosen, 1979) has highlighted the possibility of catheter migration into the subdural space with consequent induction of a late spinal block. This case suggests that there may also be a risk of delayed i.v. injection. Awareness of both possibilities is necessary in the practice of extradural catheter techniques.

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