An Aid in Arterial Cannulation

To the Editor:—Arterial cannulation for continuous blood pressure monitoring and blood sampling for blood-gas determinations is a commonplace procedure. Various catheter insertion techniques have been described.1,2 With catheters of the Teflon®-over-the-needle design, one of the problems has been entering the artery, getting blood return in the catheter hub, threading the Teflon catheter off the steel needle only to find that the Teflon portion of the catheter was outside the vessel and the vessel was pushed off the steel needle in the threading attempt.

A technique that allows for more accurate placement of the Teflon catheter is to draw a small amount of sterile saline solution or water into the hub of the needle, allow a small air bubble to form, and follow this with enough saline solution or water to form a fluid level below the bubble. This allows a compressible bubble that is visible in the hub of the needle and may be watched as the lumen of the vessel is entered. The bubble pulsates only slightly as the first portion of the steel bevel enters the vessel. The pulsation increases in intensity as the entire bevel enters the lumen. As the bevel approaches or enters the posterior wall, the pulsations will dampen. This is the point at which the Teflon needle should be threaded off the steel needle, as maximum penetration of the arterial lumen by the steel needle has been accomplished.

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REFERENCES


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Calibration Curves of Enflurane Using the Beckman LB2® Gas Analyzer with the Halothane Head

To the Editor:—Considering the frequent clinical and laboratory use of enflurane and halothane, it would be advantageous for those who utilize the LB2 medical gas analyzer equipped with a halothane head detector to be able to monitor the enflurane concentration as well with the instrumentation at hand. Although infrared analysis of halothane1 and enflurane2–5 has been used in several investigations, a detailed description of the calibration curves and linearity responses is not currently available.

We have used a Beckman LB2® Medical Gas Analyzer with a halothane head and linearizer circuit. Seven concentrations of enflurane in oxygen, as well as in 50 per cent N₂O in oxygen (range 0.27–4.4 per cent) were prepared by introducing fixed amounts of liquid enflurane by a Hamilton microsyringe into a calibrated flask (1.094 l). In the calculation of the actual anesthetic concentration, ideal gas laws using room temperature, barometric pressure (barometric pressure in Denver is about 630 torr), enflurane molecular weight, and density were applied. A three-way stopcock in the flask’s plastic cap was connected to a catheter inside the flask (5 cm long) and to the catheter input supplied with the halothane pick-up head. Readings from the digital display of the LB2 analyzer were stable several hours after calibration (less than 3 per cent change). Zero readings were obtained before each measurement of enflurane in O₂ or 50 per cent N₂O, by flushing the flask with 100 per cent O₂ or 50 per cent N₂O in O₂, respectively (digital O₂ analyzer, Model 101, Applied Technical Products). Care was taken to fill the chamber of the pick-up head with the appropriate gas in use (O₂ or 50 per cent N₂O). Halothane calibration was done for comparison, using the same procedure as for enflurane (six gas concentrations were used 0.31–3.75 per cent).

An important point to verify, before the calibration procedure is done, is to set the internal potentiometer...