

report it might be thought that all patients who develop this pattern will die. Measures to prevent deaths are being proposed. These include: having an awareness of this possible complication; placing an upper limit on the total dose of the drug employed; making frequent arterial blood-gas estimations during its administration; and the possible concomitant use of hydroxocobalamin.

I would also like to draw attention to the value of permitting spontaneous ventilation to occur in patients receiving the drug when profound muscular relaxation is not essential. In our patient who recovered from severe metabolic acidosis, vigorous tachypnea was an early diagnostic feature. The resulting respiratory alkalosis may have been of value in decreasing the acidemia and thereby contributed to the successful recovery.

WILLIAM R. MACRAE, M.B., CH.B.
*Consultant Anaesthetist
The Royal Infirmary
Edinburgh, Scotland*

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pH in Differentiating CSF from Local Anesthetics in Epidural Anesthesia

To the Editor:—Dr. Reisner's recent letter¹ concerning the value of pH in the differentiation of CSF versus epidural test solution emanating from an epidural catheter or needle was most interesting. However, a recent case of ours shows that even pH may not be unequivocal:

After identification of the epidural space at the L3-4 level using the loss-of-resistance technique (with air), 3 ml of 3 per cent 2-chloroprocaine were injected through the needle as a test dose, followed by a 10-ml initial dose. (This was done in order to minimize delay between turning the patient supine and establishment of adequate surgical analgesia.) Several drops of slightly blood-tinged fluid dripped from the needle and then stopped spontaneously. An epidural catheter was then easily passed through the needle. A small amount of clear fluid was obtained on aspiration through the catheter (approximately 2 minutes after initial injection). The pH of this fluid was in the range of 7 as determined by pH paper. The pH of the chloroprocaine from the vial was then determined with the same pH paper and was found to be in the range of 5. Since the anesthetic level was inadequate, a question arose as to whether a dose appropriate for continuous

spinal anesthesia or that for continuous epidural anesthesia should be injected next. Tetracaine, 0.5 per cent, 5 mg in 10 per cent dextrose, was then injected through the catheter. After about 5 minutes the anesthetic conditions had not changed. Another 5 mg tetracaine were injected, again without effect. More 3 per cent chloroprocaine (10 ml) was then injected, and satisfactory epidural anesthesia resulted. Thus, we concluded that the anesthetic had been deposited in the epidural space despite the pH of the fluid in question.

Attempts to repeat this observation have been hampered because fluid is usually not aspirated through an epidural catheter. However, it does show that pH testing is not necessarily an infallible means of differentiating between CSF and local anesthetics.

HENRY ROSENBERG, M.D.
*Department of Anesthesia
University of Pennsylvania
Philadelphia, Pennsylvania 19104*

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