Participation in the ASA Preceptorship program was gratifying during the 8-week course. To have three out of five students eventually enter anesthesiology residency programs was worth the inconveniences encountered during the 8-week program. Exposure to the private practice of anesthesiology is one of the most effective means to build the image of our specialty. Each anesthesiologist in private practice should evaluate their own environment and consider participation in the ASA Preceptorship program.

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Anesthesiology
60:79, 1984

The Optimal Test Dose for Epidural Anesthesia

To the Editor:—For 7 years I have used a test dose of 2 ml 0.5% bupivacaine with 1:200,000 epinephrine, and it is good to find support from American colleagues.[1]

We tested 100 young, fit, gynecologic patients by giving intravenously either 1) 0.25% bupivacaine plain, 2) 0.25% bupivacaine with 1:400,000 epinephrine, 3) 0.5% bupivacaine plain, or 4) 0.5% bupivacaine with 1:200,000 epinephrine in an amount of 2 ml. There were 25 patients in each group. Only in the group receiving 0.5% bupivacaine plus 1:200,000 epinephrine was it possible to be sure than an intravenous injection had occurred. The plain solutions never caused any symptoms or signs.

We also injected various suggested test doses intrathecally in patients requiring vaginal hysterectomy. We used 0.5% lidocaine; 0.25, 0.375, and 0.5% bupivacaine plain, and 0.5% with epinephrine. Only the 0.5% solutions of bupivacaine gave reasonably reliable results, but it was often not easy to be sure a block had occurred until 10–15 min had elapsed. At 5 min all 35 patients could move their legs. Unless evidence of perineal analgesia was sought, often nothing at all was reported by the patient. Where there is still doubt, hyperbaric dibucaine 1:200 solution 0.5–1 ml injected down the epidural needle will very quickly (2–3 min) and safely give the answer if intrathecal injection has occurred. The routine use of dibucaine would add to the expense of the technique and it's use is confined to problem cases. Thus, 2 ml 0.5% bupivacaine with 1:200,000 epinephrine is used as the routine test dose.

In the laboring patient, pain relief may develop when 2 ml 0.5% bupivacaine with epinephrine is given inadvertently into the subarachnoid space. This is a very useful safety factor and should alert the clinician to the probable occurrence of spinal analgesia.

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Another, Yet Simpler Device for the Identification of the Epidural Space

To the Editor:—Mustafa and Milliken suggested the use of a piece of clear plastic intravenous extension tubing filled with drops and bubbles, attached to a Tuohy needle to demonstrate negative pressure upon entry of the epidural space. They describe this method as simple, dependable, inexpensive, and readily available.[1]

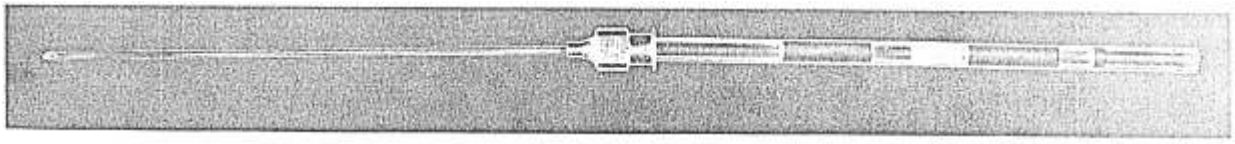

FIG. 1. Plastic sheath attached to the hub of the Tuohy needle filled with drops and bubbles.

We have been using a comparable method employing the clear plastic sheath of the Tuohy needle in the Arrow Continuous (Intermittent) Epidural Block Anesthesia Kit (Product no. AK-02000, supplied by Arrow International, Inc., Hill and George Avenues, Reading, Pennsylvania 19610), as well as in the Portex Epidural Mini pack (Reorder no. 38 00 11, supplied by Portex, Inc., 42 Industrial Way, Wilmington, Massachusetts 01887). The sheath fits tightly in the hub of the Tuohy needle. It is filled with a few drops of 0.9% NaCl solution before being attached to the Tuohy needle (fig. 1). We agree with Mustafa and Milliken that this modification is more reliable than the hanging drop sign of Gutierrez.[2] We feel that utilizing the plastic sheath contained in the Arrow and Portex kits makes this useful technique even simpler, more inexpensive, and more readily available.

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Rebreathing and the Bain Circuit. I.

To the Editor:—I read with interest Dean and Keenan's article[1] and their correspondence[2] with Nott and Norman.[3] Since they refer to my work and methods,[4] I have two comments.

Determination of the point at which rebreathing becomes clinically significant will continue to present a problem. Measurement of mean inspired carbon dioxide tension (PI_{CO_2}) requires integration of the instantaneous CO_2 signal with flow and is technically difficult. The total inspired CO_2 load can be calculated, but how much actually reaches the alveoli? My index using the minimum PI_{CO_2} of 2 mmHg (0.3%) may not be entirely satisfactory, but I suggest it gives a much more sensitive endpoint than that chosen by Dean and Keenan. Even when minimum PI_{CO_2} is recorded as zero significant rebreathing may be taking place, for a value of zero merely means that at some point (usually just at the end of inspiration) PI_{CO_2} falls to zero. A minimum PI_{CO_2} of 2 mmHg therefore indicates that at no time during the *whole* of inspiratory cycle was the fresh gas supply sufficient to prevent CO_2 reinhalation. In contrast with unrestricted breathing from the atmosphere, PI_{CO_2} will be zero throughout almost the whole of the inspiratory cycle. Kain and Nunn[5] observed a steady fall in alveolar oxygen concentration before they detected "rebreathing," which perhaps can be explained by the above arguments. Also the same logic may explain my observation (unpublished) that the Bain causes consistent rises in end-expired CO_2 tensions compared with the Lack or Magill, even though fresh gas flow was adequate to reduce minimum PI_{CO_2} to zero.

I note that Dean and Keenan like the simplicity and versatility of the Mapleson D system and are not concerned about the high flows necessary for spontaneous respiration. Nott and Norman suggest that a Mapleson A system is more appropriate.[3] The latter can reduce gas flows by nearly 70%,[4] the possible cost savings amounting to several thousand dollars per annum for each machine, a sum that many would consider meaningful. Maybe of more importance, certainly to theater personnel, is the reduction in potential theater pollution. Lastly, natural inspired humidity is higher in Mapleson A systems, high flows of dry fresh gases (as used with the Bain) being potentially harmful to patients.[6,7]

Anesthetists should be concerned that they are offering

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