crossed inside this sling, which comfortably supports them above the surface of the water. We have used all four methods of arm positioning and find the sling to be far superior in terms of patient comfort, ease of use, and quality of ECG signal.

R. KEVIN JONES, M.D.
Senior Resident

MARK H. ZORNOW, M.D.
Assistant Clinical Professor of Anesthesiology

ANDREW J. SARNAT, M.D.
Assistant Clinical Professor of Anesthesiology

Department of Anesthesiology
University of California at San Diego
225 W. Dickinson Street
San Diego, California 92103

(Accepted for publication May 15, 1986.)

Anesthesiology
65:340, 1986

On the Clinical Relevance of an Experimental Study on Neurotoxicity of Local Anesthetics

To the Editor:—In the article on neurotoxicity of local anesthetics by Myers *et al.*[1] there are errors in the design of the study which may make the results questionable. First, the volumes of local anesthetics used were excessive: 1 ml of the test solutions injected into a 225 g rat equates to 308 ml in a 70-kg man and 9,240 mg of 2-chloroprocaine (2-CP), 3,080 mg of tetracaine, 6,160 mg of lidocaine, or 2,310 mg of bupivacaine, *i.e.*, 10–20 times the clinically recommended maximal dosages of these drugs. Not only would the injected volume cause considerable discomfort, but the dosage would most certainly cause problems of general toxicity. Furthermore, the choice of 0.2% saline solution as control in some experiments and a 0.9% in others is not explained.

Second, the numbers of experiments in the various groups vary from 6 to 55, and yet the authors perform statistical comparisons between groups. In the study on endoneurial fluid pressure (EFP) there were only three animals whose sciatic nerves were "bathed" in either 3% 2-CP or normal saline for 48 h. Still, the authors were able to find a significant increase in EFP after treatment with 2-CP compared with "normal values in the contralateral control nerves, ($P < 0.025$)."

Third, permeability studies using horseradish peroxidase (HRP) as a tracer were conducted in only five animals. Under "Results" it is only mentioned that "Penetration of HRP across the blood–nerve barrier also was observed in experimental animals receiving 2-CP (fig. 4)." In fact, blood–nerve permeability was tested only with 2-CP.

Finally, one wonders why the subperineurial edema in figure 2 (right) seems confined only to the lower fascicle. Could there be an artifact?

When an experimental (or clinical) study is designed, it is important to keep the number of experiments in the various groups fairly equal in order to make the statistical calculations reliable. Also, clinical relevance is enhanced by adjusting the dose to the size of the experimental animal. In spite of this, differences between species may naturally obscure the clinical validity of the results. Perhaps this otherwise interesting study will be followed by additional studies that will clarify the questions raised in this letter.

DAG E. SELANDER, M.D., PH.D.
Department of Anesthesiology
V. Frolunda Hospital
Gothenburg, Sweden

At present:
Visiting Associate Professor
Department of Anesthesiology
University of Illinois Hospital
1740 W. Taylor St., Suite 3200 W.
Chicago, Illinois 60612

REFERENCE

1. Myers RR, Kalichman MW, Reisner LS, Powell HC: Neurotoxicity of local anesthetics: Altered perineurial permeability, edema, and nerve fiber injury. ANESTHESIOLOGY 64:29–35, 1986

(Accepted for publication May 15, 1986.)