Correspondence

An "Allergic" Reaction?

To the Editor:—I read with interest the report of "A Suspected Allergic Reaction to Lidocaine," by Dr. Lynas, in ANESTHESIOLOGY 31: 380, 1969. In my opinion, this report deserves further discussion.

Dyspnea, precordial discomfort, generalized weakness, bradycardia, (questionable) hypotension and "red blotchy wheals on the anterior chest wall" appeared in a 48-year-old man soon after the injection of 5 ml of 1.5 per cent lidocaine with epinephrine 1:200,000 as a prelude (test dose) to caudal anesthesia. Dr. Lynas discussed the classification of adverse reactions to local anesthetics initially proposed by Sadove *et al.*[1]; it is surprising that he did not consider as a possible cause of the patient's reaction the negative chronotropic effect that has given lidocaine popularity as an antiarrhythmic agent.

Undoubtedly, three attempts to initiate phleboclysis and five more attempts to find the sacral canal can have an adverse effect on the calmest, most cooperative patient, and in spite of the fact that atropine rapidly reversed the adverse reaction, Dr. Lynas did not accept this event as a probable "typical vasovagal attack," ignoring again that pallor, bradycardia and respiratory distress, which he himself mentions as frequent symptoms, can occur concomitantly.

Finally, he suggested as an explanation for the unexpected response a less common cause, allergy. This assumption was made in spite of lack of information about previous exposure to this drug, or others chemically related, and without having ruled out the possibility of allergy to other drugs administered, such as hydromorphine, diazepam (Valium), and procaine. Furthermore, the patient was advised of the possibility that he is allergic to lidocaine even when intracutaneous and intranasal tests were negative.

Since Mook[2] first reported dermal hypersensitivity to Apothesin in 1920, innumerable reports have appeared, some true, some false, trying to explain adverse responses to local anesthetic agents on the basis of "sensitivity" mechanisms. A paucity of these reports occurred after 1953, when non-esters of paraaminobenzoic acid were introduced into clinical practice.[3] Cross-reactivity[4] and group specificity[5] have been observed with the ester group of drugs, since they have molecular structures similar to those of highly antigenic substances such as dyes and sulfa drugs. Few confirmed allergic responses to amides have been reported, but most cases have eventually been shown to be caused by other mechanisms.

The reliability of intradermal testing for allergy to local anesthetics has been suggested in a study of 11 suspected patients (now 19) and 60 anesthetized patients without allergic antecedents. Although false-positive reactions can occur, negative responses proved to indicate tolerance to the drugs, correlating them by passive transfer (Prausnitz-Kustner reaction) and challenge to progressively higher doses.[6] Skin reactivity to other drugs such as the preservative methylparaben, contained in multiple-dose vials, has also been reported.[7] Adriani has advocated intranasal testing as a reliable method.[8] If more sophisticated techniques are desired, the lymphocyte–histamine-release and the lymphocyte-transformation tests can be used.

Intravascular injection of lidocaine, even if no blood was seen in the catheter, is improbable, but not impossible. Finally, the description of the dermatologic lesions observed on the chest wall is not clear enough to permit drawing a conclusion.

At any rate, for the patient's sake, for our own knowledge and for the exoneration or condemnation of the particular drug involved, I make a plea for complete evaluation and study of cases such as the one under discussion before the label "allergy to lidocaine" is applied. The benefits of local anesthetic drugs have been denied to too many patients, and general anesthesia has been administered un-

der hazardous conditions on the false premise of drug sensitivity.

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Injury from Use of Pneumatic Tourniquets

To the Editor:—The increasing use of pneumatic tourniquets to provide a bloodless field in surgery on the extremities and their use for intravenous regional anesthesia, has created new problems for the patient and anesthesiologist.

In a one-week period, we uncovered one neurologic and one vascular complication.

Case I. A 35-year-old man had a ganglion of the wrist removed under intravenous regional block. Forty ml of 0.5 per cent lidocaine were used. Tourniquet time was 75 minutes; tourniquet pressure was 250 mm Hg. The operation was without incident except for tourniquet pain after one hour. Postoperatively, marked swelling of the involved arm developed. Superficial veins were non-tender and not injected. The swelling responded well to intravenously given heparin and elevation of the arm.

Case II. A 23-year-old woman had lacerated an arm in the antecubital fossa. Repair was performed under axillary block, using 30 ml of 1.5 per cent mepivacaine. A radial nerve paresthesia was elicited, but injection was done without pain or discomfort. Tourniquet time was 90 minutes and tourniquet pressure 250 mm Hg. The following day a wrist drop was noted.

The two cases were carefully scrutinized for errors in technique or management. Nothing could be faulted. The common denominator was the pneumatic tourniquet. Both procedures had been done in the same operating room, utilizing the same tourniquet. When the gauges were checked against a mercury manometer, we discovered that the tourniquet gauge read 100 mm Hg too low. When the tourniquet was set at 100 mm Hg, it actually exerted a pressure of 200 mm Hg; at a 200-mm Hg setting, it exerted a pressure of 300 mm Hg. Several other pneumatic tourniquets in operating rooms were then checked and found to read from 25 mm Hg to 75 mm Hg too low. All gauges have since been returned to the manufacturer for recalibration.

Too often the gauges on pneumatic tourniquets are accepted as accurate and this accuracy is not questioned unless the gauge ceases to function altogether. To check the accuracy of these gauges and protect ourselves from undesirable complications secondary to excess pressure from the tourniquet, we have instituted a simple precaution. Prior to the use of any tourniquet, the pressure gauge is set at 100 mm Hg and connected to the mercury manometer on the anesthesia machine. The pressure in the tourniquet line is then released and pressure on the mercury manometer read. The procedure is repeated with the pressure gauge set at 200 mm Hg. Inaccurate gauges should be returned to the manufacturer for recalibration.

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