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Intrapleural Administration of Bupivacaine for Post-thoracotomy Analgesia

To the Editor:—Intrapleural administration of local anesthetics has been utilized for post-thoracotomy analgesia.^{1,2} The technique, as originally described,¹ utilizes an epidural catheter inserted percutaneously through a Tuohy needle into the pleural space. We would like to report the successful use of an indwelling chest tube for the same purpose. A 33-yr-old female, who had undergone a thoracotomy for decortication of the lung as treatment for empyema, experienced a great deal of incisional pain requiring significant doses of parenteral narcotics. Three chest tubes had been placed at the time of surgery, and there was no evidence of residual air leak. Thirty milliliters of 0.25% bupivacaine was instilled into the most posteriorly placed chest tube, taking care not to introduce air into the pleural space, and the chest tube was subsequently clamped for a period of 30 min. Within 15–30 min, the patient reported onset of significant analgesia, which persisted for approximately 2 h. Arterial blood samples taken at 15, 30, 45, and 60 min following the dose revealed serum bupivacaine levels of 0.7, 0.8, 0.6, and 0.7 μg per ml, respectively. These levels are quite similar to those previously reported,^{2,3} and tend to support the safety of this dose of bupivacaine administered in this fashion. Addition of epinephrine may possibly result in even lower serum concentrations.³ In this case, the posteriormost chest tube was utilized because it was felt that access here was most direct to the proximal portions of the intercostal nerves in the vicinity. One word of caution: if this route is to be utilized, there should be no demon-

strable air leak present, and the patient should be able to tolerate clamping of the chest tube. The advantage of this technique is that it utilizes an already existing route to gain access to the pleural space without the need for an additional procedure to place a catheter for local anesthetic administration. The cumulative toxicity of repeatedly administered doses by this route remains to be evaluated.

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Is Transesophageal Echocardiography a Measure of Left Ventricular Function?

To the Editor:—Konstadt *et al.*¹ attempted to confirm the validity of transesophageal echocardiography (TEE) as a measure of left ventricular function. However, their conclusions may be somewhat misleading. They demonstrated that left ventricular end-diastolic area, end-systolic area, and ejection fraction (EF), as determined by TEE, correlate well with those same measures determined by epicardial echocardiography. They conclude that their data indicate that TEE can accurately assess left ventricular filling and ejection. We believe that the authors must correlate TEE measurements with EF and left ventricular

volumes determined by a recognized standard before such a conclusion is warranted.

Several different approaches to determining left ventricular volume using precordial echocardiography have been described.^{2–6} The best results are obtained when more than one cross-sectional area and the ventricular length are used in the calculation. This approach generally gives good correlation with angiographically derived volumes. Estimates of volume using a single cross section or diameter have often correlated poorly with angiographically derived estimates.^{2,3}