Diagnosing Central Pulmonary Artery Thromboembolism

To the Editor:

In the April 1994 issue of Chest, Patel and colleagues presented data on the incidental diagnosis of central pulmonary artery thromboembolism by transesophageal echocardiogram (TEE). They reported what seemed to be an unusually high number of cases of central pulmonary artery thromboembolism diagnosed by this technique. They did not report how many TEE procedures were done at their institution per year or how many years the retrospective study spanned. At the University of Texas Southwestern in Dallas, we have done over 2,400 TEEs over the last 3 years. Only one definite case of central pulmonary artery thromboembolism had been identified.

We suspect three reasons for the discrepancy between the two institutions. First, we may have missed this lesion with some frequency. Second, it is possible that the clinicians in their study had a very low threshold for ordering TEE on their critically ill patients. Third, the more worrisome reason is that the physicians in their study may have failed to consider pulmonary embolism (PE) as the primary diagnosis based on clinical findings alone. At least half of their critically ill patients had significant risk factors for venous thromboembolism and suspicious signs and symptoms for deep venous thrombosis or PE. None of these patients had lung scans or pulmonary arteriograms until after the TEE had been done. Patel even comments, "In our group of patients, a careful assessment for the presence of risk factors for PE would have heightened the suspicion for the diagnosis of PE..." At a time when the indiscriminate use of "high-tech" procedures is being scrutinized, this study confirms that there is no substitute for good clinical judgment. Perhaps many of the patients in their study should have undergone ventilation-perfusion lung scanning or even pulmonary arteriography prior to a TEE. One wonders how many small peripheral PEs may have been missed at their institution.

REFERENCE

To the Editor:

We have received the copy of the letter from Dr. Huang, and I have discussed the concerns with him.

Drs. Huang and Friedman first point out the "high number of cases of central pulmonary artery thromboembolism." We did not prospectively evaluate patients suspected of pulmonary embolism (PE) by transesophageal echocardiogram (TEE). We reported on those patients in whom PE was found as an incidental finding on TEE performed for other reasons indicated in Table 1 (Chest 1994; 105:986-90) and how this finding made an impact on their management. Therefore, the question of incidence does not arise at all.

Their second point is the discrepancy between the numbers of TEEs performed at the University of Texas Southwestern and at Hahnemann University. We have performed 3,200 TEEs over the past 3½ years. We have seen pulmonary embolism incidentally on TEE in 14 patients, 0.4%. This is somewhat higher than experienced by Huang and Friedman. This is, in part, due to a thorough evaluation, in all patients, of all structures including main pulmonary artery, right pulmonary artery, and the distal left pulmonary artery even after the original clinical indication for the TEE was assessed.

The doctors’ third point is failure "to consider pulmonary embolism as the primary diagnosis." This concern is not valid because the incidental diagnosis of PE by TEE only in 14 of 3,200 TEE cases is significantly lower than the prevalence of all pulmonary emboli at our institution. This clearly indicates that like any other institution when PE is clinically suspected in a patient, we follow the standard management plan, which indicates VQ Scan, pulmonary arteriogram, or both.

Huang and Friedman have also expressed their concern regarding the diagnosis of PE by TEE and subsequent confirmation by VQ Scan and questioned clinical judgement in the diagnosis of PE. As outlined in the article (Chest 1994; 105:986-90), these 14 patients had overwhelming comorbid conditions in Table 1, which precluded suspecting pulmonary embolism as the primary diagnosis. This is not a surprise since the inability to diagnose accurately a pulmonary embolism especially in the presence of comorbid conditions is well described.

The major take-home message of our article is simple. If and when TEE is performed in a critically ill patient with significant cardiopulmonary symptoms where more than one diagnosis may be present, the evaluation of the central pulmonary artery may be helpful by showing co-existing PE. If central pulmonary embolism is detected under such conditions, the institution of appropriate management may favorably influence the outcome.

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Reference
1 Modan B, Sharon E, Jelin N. Factors contributing to the incorrect diagnosis of pulmonary embolic disease. 1972; 62:388-93