PATIENTS WITH CANCER AND CENTRAL PULMONARY EMBOLI TREATED SURGICALLY

To the Editor:

We read with great interest the recent article by Greelish and colleagues,¹ "Improved Midterm Outcomes for Type A (Central) Pulmonary Emboli Treated Surgically," which has the potential to change the landscape of indications for surgical intervention in acute central pulmonary embolism. The volume of acute pulmonary embolectomy cases completed at our institution would significantly increase if we used the treatment algorithm proposed. Specifically, we refer to the algorithm for patients without the classic indications for surgical intervention and moderate to severe right ventricular dysfunction according to 2-dimensional echocardiography. Currently at the Ottawa Heart Institute, our patients undergoing acute pulmonary embolectomy patients are limited to those in extremis with the classic indications outlined in by Greelish and colleagues,¹ with resultant poor survival outcomes overall. If our indications for surgical intervention were to be broadened to include all those with a central pulmonary embolism and moderate to severe right ventricular dysfunction, by expanding the scope of care for this critically ill group an important associated cost burden would be placed on our already limited operating room and surgical intensive care unit resources.

In light of the potential increase in surgical volume and associated resource use cost, we consider it important to eliminate additional confounders from the survival analysis. In particular the differences between the medical and surgical management groups with respect to history of cancer must be reexamined. It would be of great value to complete Kaplan-Meier life table analysis for both groups, excluding all patients with cancer from analysis. Active malignancy is an important confounder for all cause death rates and subsequent life table analysis. The presence of active or incurable cancer would certainly influence patient management in both subtle and overt ways, the most overt way being that a patient with metastatic or locally advanced cancer is less likely to be considered for aggressive surgical management. An additional important point is that regardless of whether patients with cancer die directly of their disease, the very presence of malignancy puts them at risk for death from other associated conditions, including thromboembolism, infection, myocardial infarction, hemorrhage, and stroke.²⁻⁴

We understand it was stated that only 1 patient in the surgical treatment group and 23 in the medically treated group died of cancer.¹ We still recommend that the survival analysis be completed to exclude this confounding group, however, because the presence of cancer influences patient management and puts patients at risk for death from other malignancy associated conditions.²⁻⁴

We anticipate with great interest the results from the survival analysis excluding patients with cancer. If there is still a survival difference evident after exclusion of patients with cancer, Greelish and colleagues' article¹ truly has the potential to change the scope of surgery for acute pulmonary embolectomy by broadening our indications for surgical management.

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References

1. Greelish J, Leacche M, Solenkova N, Ahmad RM, Byrne JG. Improved midterm outcomes for type A (central) pulmonary emboli treated surgically. *J Thorac Cardiovasc Surg.* 2011;142:1423-9.
2. Inagaki J, Rodriguez W, Bodey JP. Causes of death in cancer patients. *Cancer.* 1974;33:568-73.
3. Ambrus JL, Ambrus CM, Mink IB, Pickren JW. Causes of death in cancer patients. *J Med.* 1975;6: 61-4.
4. Khorana AA, Francis CW, Culakova E, Kuderer NM, Lyman GH, et al. Thromboembolism is a leading cause of death in cancer patients receiving outpatient chemotherapy. *J Thromb Haemost.* 2007;5:632-4.

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Reply to the Editor:

We appreciate the comments of McGuire and Rubens on our article regarding the proposed new algorithm for surgical management of central surgically accessible (Vanderbilt type A) pulmonary embolism. In our article,¹ we documented that active malignancy was a confounding variable for survival. Certainly, in a patient with metastatic cancer or locally advanced malignancy, the decision to proceed with aggressive surgical management should be undertaken only after careful consideration. In our study, among patients treated surgically, 2 had active malignancy and 1 died during follow-up as a result of the cancer. In the medically treated group, the incidence of cancer at the time of diagnosis of pulmonary embolism was higher but not significantly so (32% vs 13%; $P = .135$). Had we excluded all patients with a diagnosis of cancer at the time of diagnosis of pulmonary embolism, we would have excluded 34 patients (32 in the medical group and 2 in the surgical group), leaving for analysis a very small

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