Cardiac Troponin T Monitoring and Acute Pulmonary Embolism

To the Editor:

We read with great interest the article by Pruszczyzk and coworkers (June 2003) that reported that patients with pulmonary embolism (PE) and elevated cardiac troponin T (cTnT) levels are at significant risk for a complicated clinical course and fatal outcome. We agree with the authors that risk stratification of hemodynamically stable patients with PE is particularly important because more aggressive therapies such as that with thrombolytic agents may improve outcome. However, we would like to comment on two issues regarding their study.

First, compared with previous studies in which authors have excluded coronary artery disease (CAD)-related positive cTnT levels by coronary angiography, cardiac stress-test, or autopsy, Pruszczyzk and coworkers did not exclude the presence of CAD in any of their patients. Including a detailed history of cardiac risk factors in the study is essential, because the severity of CAD may be a confounding factor, especially when almost a third of each category (ie, "survivors" and "nonsurvivors") had known CAD.

Second, 42% of survivors had a positive cTnT finding, which is also emphasized by the authors. This result demonstrates a poor positive predictive value for severe PE. Similar results were found by other studies as well. The cTnT-positive predictive values in studies by Janata et al and Konstantinides et al were 0.34 and 0.41, respectively. However, very good negative predictive values were found for both cTnT and cardiac troponin I in the range of 0.92 to 0.99. In our opinion, the significance of a test assessing cTnT in patients with PE relies on its negative predictive value, and not on its positive predictive value. Therefore, we think that negative cTnT levels obtained during repetitive assays accurately predict which patients with PE will not have a complicated course.

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REFERENCES


To the Editor:

There is growing evidence that the monitoring of biomarkers, including cardiac troponins and brain natriuretic peptides, is useful in the risk stratification of patients with acute pulmonary embolism (APE). In our opinion, it will be especially useful in the management of patients who are initially hemodynamically stable, because shock or hypotension per se justifies prompt aggressive therapy. We studied 64 patients with APEs who were normotensive on hospital admission (ie, systolic BP > 90 mm Hg) and observed biochemical signs of myocardial injury (ie, cardiac troponin T level, > 0.01 ng/mL) in 50% of them. Indeed, we did not exclude patients with coronary artery disease (CAD), and it was objectively confirmed or clinically diagnosed in 30% of those patients in the group studied. We agree that CAD might facilitate myocardial injury and cardiac troponin T release in APE patients. The authors of previous articles have also pointed out that significant coronary artery stenosis may have been present in some patients included in their studies, thus limiting the specificity of the troponin measurements.

However, myocardial infarctions also have been reported in patients with APE and healthy coronary arteries. Moreover, we found no differences in the incidence of CAD among troponin-positive and troponin-negative groups, survivors, or nonsurvivors. It should be underlined that in our study detectable serum troponin levels predicted a fatal outcome and a complicated clinical course (ie, at least one of the following in-hospital events: death; thrombolysis; cardiopulmonary resuscitation; and use of IV catecholamine agents), while the presence of CAD did not. The in-hospital mortality rate in patients who experience submassive APEs has been reported to reach approximately 15%. Therefore, it is very important to identify among these patients a high-risk group that should be closely monitored and that may require thrombolysis. Interestingly, all eight in-hospital deaths that were observed in our study occurred in the troponin-positive

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Surgery in Lung Cancer Patients

To the Editor:

Medical academic journals are influential in physicians’ decision making all over the world. In the July 2002 issue of CHEST, Handy et al.1 showed that the quality of life of patients is impaired 6 months after lung cancer resection. Another article2 and an editorial3 properly has indicated the specific use and the economical interests that underlie screening.

After all this reading, should the practitioner deny surgery to his patients? Does it make sense to conclude that a patient’s quality of life is suboptimal 6 months after undergoing surgery when lung function and residual pain can still improve?

Historically, the Mayo Lung Project did not show a significant difference in survival between resected patients who had been tested for detection three times a year and their usual population of heavy smokers (control group) who were tested every year. In those days, Dr. Robert Fontana (personal communication; July 9, 1984) wrote me the following: “I deeply appreciate the data that you sent to me, and I agree with you completely. The data are impressive, particularly the overall resectability rate of approximately 15%. Our final figures concerning resectability in the Mayo Lung Project are now 32% for the control group. Nearly a third of the cancers in the control group were detected by chest radiograph films obtained during the evaluation of non-lung cancer complaints or during general medical examinations of men who had been heavy smokers. Of lung cancers detected in this way, 75% were resectable ‘for cure.’ Such cases constitute the majority of resectable cases in the control population. I believe that you have supplied the answer to the question of what would have happened to the patients in the control population had they not access to chest radiograph examinations.”

There are important differences between studies involving large populations and the responsibility of each physician to the individual patient, the source of the physician’s duty and concern. So, I believe that, to date, the best indication for a high-risk patient is early endoscopic and/or CT scan detection of lesions. The patient will then be able to take the unique chance for a cure that only surgery can offer.

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References
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3 Marcus PM. Lung cancer screening, once again. Chest 2002; 122:3–4

Looking at Transpulmonary Thermodilution Curves

The Cross-Talk Phenomenon

To the Editor:

Transpulmonary thermodilution has been shown to be an easy and reliable technique for hemodynamic monitoring in critically ill patients and is being used increasingly.1–4 After injection of a