The Mortality of Untreated Pulmonary Embolism

To the Editor:

One of the most widely quoted statistics in the literature on pulmonary embolism (PE) is that the mortality of untreated PE is 30%. The principal support given for this figure is a study published in 1960,1 in which 5 of 19 untreated patients died.

An article by Stein et al (CHEST 1995; 107:931-35) calls this statistic into question by showing that of 20 patients in the Prospective Investigation of Pulmonary Embolism Diagnosis (PIOPED) study who were left untreated, only one later died of PE. The authors state that these patients had “mild” PE, but they provide evidence to show that the clinical findings in the untreated group were comparable with those of the treated PIOPED patients.

Seven of the 20 untreated patients died of causes other than PE. We are personally aware of a group of ten patients with probable PE who, for reasons similar to those given for the PIOPED patients, were left untreated for a year or more in 1980, without any deaths or untoward events which resulted in hospitalization. The diagnosis at that time was by perfusion scintigraphy (P.E., unpublished data, 1981).

In 1977, a group of 308 orthopedic patients who suffered a clinically diagnosed PE were left untreated, and there were no deaths.2 Furthermore, Williams et al,3 using serial ventilation/perfusion lung scans and angiography in 158 orthopedic patients, found a postoperative incidence of PE of 30%, despite heparin prophylaxis. The majority of these cases were asymptomatic. If one were to accept the currently prevailing view regarding prognosis, it would be reasonable to conclude that the postoperative mortality from PE ought to be about 10%. This is clearly not the case.

Either orthopedic patients have unusual emboli with a better prognosis or they are simply better studied than other groups. It is possible that symptomatic and asymptomatic emboli may have a different natural history, but this does not seem likely, since even small emboli can produce dramatic symptoms and massive emboli are often completely asymptomatic.

Hull et al4 have shown that it was safe to withhold anticoagulants in medical patients with indeterminate lung scans provided there was no evidence of deep vein thrombosis. Many of these patients would have had PE.

The Barritt and Jordan trial5 was a small study and there were methodologic problems associated with it. Consequently it would be imprudent to use it to deduce the overall mortality of untreated PE. The extrapolation of 1960 findings to patients who are diagnosed in 1995 using more sensitive techniques is likely to be misleading. Despite what is often written, there is insufficient information to speculate on the mortality of untreated PE in pregnant women, or among outpatients with pleuritic chest pain diagnosed by lung scan.

In cases such as these, the mortality and morbidity associated with drugs such as heparin or warfarin could possibly be worse than those of the disease itself.

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REFERENCES


The Cost of Treatment of Spontaneous Pneumothorax With the Thoracic Vent Compared With Conventional Thoracic Drainage

To the Editor:

We read with interest the report by Andrivet and coworkers (CHEST 1995; 108:335-40) on the treatment of spontaneous pneumothorax. In our opinion, all three presented procedures have one expensive disadvantage in common: the need for hospitalization. The mean duration of hospitalization for immediate needle aspiration, delayed needle aspiration, and thoracic drainage was 4.9±2.3, 7.0±5.6, and 7.0±4.6 days, respectively. Reducing the need of hospitalization for patients with spontaneous pneumothorax could possibly reduce cost. The objective of our small trial was therefore to evaluate the impact of a minimally invasive thoracic drain allowing outpatient management on the cost of treating patients with spontaneous pneumothorax.

In the time from April 1994 and March 1995 patients with spontaneous pneumothorax were randomized to treatment with either the thoracic vent (19 patients) or conventional intercostal chest tube drainage (13 patients). The thoracic vent consists of a polyurethane catheter connected to a plastic chamber containing a one-way valve. As there is no need to connect the drain to an underwater seal device, hospitalization and immobilization can be avoided.1 Patients were statistically comparable in both groups.

Length of hospitalization and costs between both treatments were compared by the Mann-Whitney U-test, and success of treatment (defined as reexpansion of the affected lung within 2 days and no need of second drain) was evaluated by the Fisher's Exact Test.

With conventional thoracic drainage, treatment was successful in 11 patients (85%); treatment with the thoracic vent was successful in 16 patients (84%) (Fisher's Exact χ² = 0.375 odds ratio 1.03, 95% confidence interval [CI] 0.15-7.2; p=NS). The median length of hospitalization was 144 h (95% CI 72-336 h) in the group treated with conventional intercostal chest tube drainage and 5 h (95% CI 5-48 h) in patients treated with the thoracic vent (p=0.0016). The median cost of treatment with conventional intercostal chest tube drainage was $6,160 US (95% CI $3,100-$14,270 US), and $500 US (95% CI $500-$2,480) when treatment was performed with the thoracic vent (p=0.0016).

In a time of limited financial resources, all possibilities of reducing costs without disadvantages for the patient are of major interest. We believe that the minimally invasive treatment of spontaneous pneumothorax with the thoracic vent is an effective and inexpensive alternative to conventional chest tube drainage.

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