described in SSc patients with pulmonary fibrosis or by spontaneous release of interleukin-1 since these alterations may enhance T helper cell function in antibody synthesis. This report emphasizes that antinuclear anti-Scl-70 antibodies may distinguish not only the diffuse cutaneous subset of SSc, but also patients at risk of developing severe lung disease.

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REFERENCES


Tuberculosis Screening in 1,161 Elderly Patients

To the editor:

The prevalence rates of positive purified protein derivative (PPD) skin tests in nursing home patients range from 10 to 41 percent. Anergy is responsible for very few nonreactors. Two-step PPD skin tests and chest x-ray examinations were performed in 1,161 elderly patients in two long-term healthcare facilities located in New York City. All tuberculin skin tests were given intradermally by a staff physician using PPD 5 units in 0.1 mL and read at 48 to 72 hours. If the induration was less than 10 mm at its greatest diameter, the test was repeated within 2 to 4 weeks. The PPD skin test was considered positive if induration ≥10 mm was measured on either of the two tests.

Table 1 shows the prevalence of positive PPD skin tests in elderly patients at both facilities, separately and combined. Clinical tuberculosis was present in none of the 1,161 patients based on chest x-ray films taken at the Hebrew Home for the Aged, Riverdale and based on chest x-ray and sputum cultures for acid fast bacilli (when clinically indicated) at the Hebrew Hospital for Chronic Sick.

Two-step PPD skin testing minimizes confusing a subsequent true positive PPD skin test from a positive PPD skin test due to the booster phenomenon. Patients who convert to a positive PPD skin test with subsequent testing can be assumed to be newly infected. Since elderly patients in nursing homes have an increased risk of developing clinical tuberculosis, two-step PPD skin tests should be performed in all nursing home residents at admission and subsequently when clinically indicated.

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REFERENCES


Table 1—Prevalence of Positive PPD Skin Tests in Elderly Patients in Two New York City Long-term Health Care Facilities

<table>
<thead>
<tr>
<th>Facility</th>
<th>Positive tests (total)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hebrew Hospital for Chronic Sick</td>
<td>34/521</td>
<td>7</td>
</tr>
<tr>
<td>Hebrew Home for the Aged at Riverdale</td>
<td>73/640</td>
<td>11</td>
</tr>
<tr>
<td>Both facilities</td>
<td>107/1161</td>
<td>9</td>
</tr>
</tbody>
</table>

CHEST / 96 / 4 / OCTOBER, 1989 981
To the Editor:

As an alternative method of cardiac output determination (rather than thermodilution, as suggested by Dr. Robin), we would like to report our experience with transesophageal Doppler aortic blood flow measurement when taking the patient off cardiopulmonary bypass (CPB).

Aortic blood flow can be determined with an intra-esophageal probe with Doppler and echographic transducers. The juxtaposition of the aorta and the esophagus allows good ultrasonographic access to the descending aorta (Fig 1). Aortic blood velocity is measured by continuous wave Doppler (5 MHz) and aortic diameter by A-mode pulse echocardiography. An output calculator then determines the descending aortic blood flow according to the formula Q = S × V, where Q is aortic blood output, S is the cross-sectional area of the aortic lumen (calculated from aortic diameter) and V is the average blood velocity in the aorta. Before starting CPB, the probe is gently introduced into the esophagus by nasal or oral route. The probe is first rotated to get the optimal level of Doppler signal. The A scan ensures fine orientation of the probe and systolic aortic diameter measurement. Aortic blood flow can then be calculated and monitored continuously. During cardiac assistance and rewarming, the probe is repositioned. Pump flow rates are progressively decreased, taking into account arterial blood pressure (BP), left atrial pressure (LAP) and Doppler aortic blood flow (DA). When CPB is stopped, loading conditions are managed to maximize aortic blood flow. The results of this technique, applied in 20 adult cardiac surgical patients, are presented in Table 1. At the end of CPB, average DA and BP of all patients increase while LAP rises during volume loading. However, two cases of cardiac failure are noted. In one case, during volume loading DA and BP decreased while LAP increased. Cardiac assistance was then continued and weaning from CPB became easy 30 min later. In another case, LAP was high at the end of CPB and an improvement in DA was obtained with the help of a vasodilator drug (nitroglycerine).

Thermodilution cardiac output determinations are periodic and time-consuming, which is inadequate for short and rapidly evolving hemodynamic situations. Doppler aortic blood flow provides non-invasive continuous and instantaneous monitoring. Accuracy of the Doppler determination of aortic blood flow has been demonstrated, but a certain degree of error exists which originates from aortic diameter and blood velocity measurements, and from instability of the position of the probe. Nevertheless, the shift of aortic blood flow is obviously correlated to the evolution of cardiac output during short periods. In conclusion, Doppler aortic blood flow measurements are particularly useful when coming off CPB.

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REFERENCES
1 Robin ED. Death by pulmonary artery flow directed catheter. Chest 1987; 92:727-31

Erratum
To the Editor:

I note that the printed text of our article on the optimal therapeutic range for warfarin has an error in the calculation of INR on page 65, line 15 of the Chest supplement (February, 1989). The "c" that follows the prothrombin time ratio should have been a superscript indicating that the ratio is raised to the power. This is crucial to understanding the INR.

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Boston