been documented in India and suggests greater exposure to environmental mycobacteria than in Europe (14, 15). However, tuberculosis is also more common in India than in the UK and the high control values could be attributed to self-healed infection. The data cannot distinguish between these two alternatives.

In conclusion, the 19 kDa antigen is useful for the serodiagnosis of smear-negative tuberculosis only in countries where tuberculosis is not endemic, such as the UK, but not in geographical regions, such as India, where exposure to both environmental mycobacteria and tuberculosis are more common. Further analysis of the immune response to this antigen may, however, provide an insight into the mechanisms of host responses to Mycobacterium tuberculosis which are associated with limited or contained disease.

References


Evaluation of the Septi-Chek AFB System in the Recovery of Mycobacteria

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The performance of the Septi-Chek AFB System (Roche) in the isolation of mycobacteria was compared to that of culture on Lowenstein-Jensen (LJ) medium and the Bactec radiometric system. The Septi-Chek AFB system detected a significantly higher number of positive specimens (62/66 versus 47/66 for Bactec and 39/56 for LJ medium) and was more often the only medium in which an isolate was recovered. The average time for detection of isolates was very similar for the Septi-Chek AFB and Bactec systems which were both significantly faster than LJ medium in the majority of isolates.

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Considerable advances have been made in the detection and identification of most microorganisms, however slow growing organisms such as the mycobacteria continue to present a challenge. Introduction of a medium (12B) for culture of mycobacteria using the Bactec radiometric system (Becton Dickinson, USA) represented a significant step in decreasing the detection time required for culture of these organisms. The system also decreased the time necessary to differentiate *Mycobacterium tuberculosis* from other mycobacteria and provided a more rapid method for susceptibility testing of *Mycobacterium tuberculosis*. The use of specific probes such as the Accuprobe System (Gen-Probe, USA) provides rapid identification of certain mycobacteria after sufficient growth of the organisms has occurred. Use of the polymerase chain reaction for the identification of mycobacteria appears promising, however the implementation and acceptance of this technology for detecting mycobacteria in clinical specimens still requires increased sensitivity and reduced labor intensity. A recently introduced biphasic culture system, Septi-Chek AFB (Roche, USA), has been shown to compare favorably to both conventional culture methods and the Bactec system (1). We report the results of a study comparing Bactec, Septi-Chek AFB and Lowenstein-Jensen (LJ) medium with respect to isolation rates and time for detection of mycobacteria in clinical specimens.

**Materials and Methods.** All clinical specimens submitted for mycobacterial culture between 20 April 1991 and 25 June 1991 were included in the study. The majority of specimens were from the respiratory tract, but specimens also included urine, stools, tissue biopsies and a variety of normally sterile body fluids. Although the Septi-Chek AFB system had not been approved for detection of mycobacteria in blood specimens at the time of this study, we included 89 blood specimens in our evaluation. Contaminated site specimens were digested and decontaminated by standard methods (2). Blood and bone marrow specimens were collected in Isolator tubes (Wampole, USA) and the concentrate used to inoculate the Septi-Chek AFB and Bactec systems. Regardless of the source, an equivalent amount of specimen was used to inoculate each system. In order to determine detection rates more accurately, we monitored the Septi-Chek AFB bottles on a daily basis for the first week, three times weekly for the next three weeks, and one time each week for the final four weeks. The Bactec bottles were monitored in accordance with the manufacturer's instructions; however, when the Septi-Chek AFB bottles became positive the Bactec bottles and LJ slants were examined on a daily basis until they became positive. Similarly, if a Bactec bottle became positive first, the Septi-Chek and LJ slants were examined daily until positive.

**Results and Discussion.** The laboratory received a total of 622 specimens during the study period. Of these, 66 specimens (10.6 %) were positive for mycobacteria (Table 1). Nine of these cultures grew *Mycobacterium tuberculosis* and 47 grew organisms of the *Mycobacterium avium-intracellulare* complex. Probe analysis (Gen-Probe) of the latter group indicated that 29 isolates were *Mycobacterium avium*, 14 *Mycobacterium intracellulare* and 4 were nonreactive on probe evaluation. Rates of contamination for Septi-Chek AFB, Bactec and LJ slants were 2.9 %, 4 % and 6.6 %, respectively.

Table 2 shows the rate of recovery of the 66 positive specimens for each system. Culture on LJ medium had the lowest rate of isolation with 39/56 (70 %) positive cultures. Blood specimens were not inoculated onto LJ slants; therefore, these results are based on 56 rather than 66 isolates. The Bactec system detected 47 (71 %) and the Septi-Chek AFB system 62 (94 %) of the 66 positive specimens. Also shown is the number of isolates which were detected only by the individual methods. Single isolates of *Mycobac-

<table>
<thead>
<tr>
<th>Method</th>
<th>M. tuberculosis</th>
<th>M. avium-intracellulare complex</th>
<th>Other mycobacteria*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LJ medium</td>
<td>6</td>
<td>29</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>Bactec</td>
<td>8</td>
<td>35</td>
<td>4</td>
<td>47</td>
</tr>
<tr>
<td>Septi-Chek AFB</td>
<td>9</td>
<td>44</td>
<td>9</td>
<td>62</td>
</tr>
<tr>
<td>All methods</td>
<td>9</td>
<td>47</td>
<td>10</td>
<td>66</td>
</tr>
</tbody>
</table>

*4 M. chelonae, 3 M. gordonae, 2 M. fortuitum, 1 M. scrofulaceum.*