Massive Diagnostic Yield of HIV-Associated Tuberculosis Using Rapid Urine Assays in S. Africa

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**ABSTRACT**

Aims: To determine TB prevalence among asymptomatic HIV-infected individuals who have undergone rapid urine-based tests for tuberculosis (TB) in South Africa.

**THE PROBLEM:**
Post-diagnosis studies of HIV-related tuberculosis (TB) mortality in sub-Saharan Africa (SSA) report healing rates of 30%, 25%, and 20% of cases reported mortality rates of 10%, 12%, and 14%, respectively. Most HIV-related deaths under 40 years of age are due to TB. In SSA, the burden of HIV-related TB is immense — estimated to be 21% of all HIV-related deaths. Rapid TB diagnosis and treatment is crucial to decrease the burden of HIV-related TB mortality.

**RESULTS:**

<table>
<thead>
<tr>
<th>Patient Recruitment</th>
<th>PTB in 54.0%</th>
<th>EPTB in 62.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuberculosis patients</td>
<td>512</td>
<td>480</td>
</tr>
<tr>
<td>Untreated TB patients</td>
<td>70</td>
<td>69</td>
</tr>
<tr>
<td>Other TB patients</td>
<td>131</td>
<td>121</td>
</tr>
<tr>
<td>TOTAL</td>
<td>724</td>
<td>669</td>
</tr>
</tbody>
</table>

**Diagnosis Yield From Rapid Testing of Sputum and Urine Obtained in First 24 Hrs**

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Tuberculosis</th>
<th>Other</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sputum</td>
<td>237</td>
<td>51</td>
<td>288</td>
</tr>
<tr>
<td>Urine</td>
<td>171</td>
<td>41</td>
<td>212</td>
</tr>
</tbody>
</table>

**Conclusions:**

- **Huge burden of HIV-TB in the South African population:**
  - Much TB remains under the radar.
- **Traditional diagnostic approaches are not viable:**
  - Identifying symptomatic cases delays the diagnostic yield.
  - Reliance on sputum is unreliable — many patients cannot produce sputum and most disease is extrapulmonary.
- **Need a paradigm shift** in diagnostic approach:
  - Active screening among asymptomatic is needed.
  - Consider routine use of urine-based rapid tests (Determine TB-LAM and urine Xpert MTB/RIF) in the initial diagnostic screen.

**References**


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