Virological outcomes of SA children receiving HAART and TB co-treatment

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South Africa

Presented at the 3rd HIV Pediatrics Workshop, 15 - 16 July 2011, Rome, Italy
TB incidence 2009

- Global
- Europe
- Africa
- South Africa
- Cape Town
- Khayelitsha

Per 100,000 population

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Aim: To explore the virological outcomes of children who received HAART and TB co-treatment
Inclusion criteria

1/1/2003 to 31/12/2005

01/04/2002 to 31/12/2008

TB treatment

01/04/2002 to 31/12/2008

HAART

TB

>2 WK

HAART

= CO-TREATED

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Definitions

- **Virological failure**: 2 consecutive 6 monthly VL levels >5000 copies/ml

- **HAART** (SA guidelines 2003-5):

<table>
<thead>
<tr>
<th>Time</th>
<th>Regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 months</td>
<td>2 NRTI and ritonavir</td>
</tr>
<tr>
<td>6m-3y OR &lt;10kg</td>
<td>2 NRTI and LPV/r*</td>
</tr>
<tr>
<td>&gt;3y</td>
<td>2 NRTI and EFV</td>
</tr>
</tbody>
</table>

*if TB, LPV/r → ritonavir
# Comparisons between groups

<table>
<thead>
<tr>
<th></th>
<th>TB (79)</th>
<th>No TB (139)</th>
<th>Total (218)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (m), median</td>
<td>21</td>
<td>36</td>
<td>28</td>
<td>0.0006</td>
</tr>
<tr>
<td>WFA Z-score, median</td>
<td>-3.27</td>
<td>-1.87</td>
<td>-2.20</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>PI, n (%)</td>
<td>57 (72%)</td>
<td>59 (42%)</td>
<td>116 (53%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Failed, n (%)</td>
<td>24 (30%)</td>
<td>19 (14%)</td>
<td>43 (20%)</td>
<td>0.003</td>
</tr>
<tr>
<td>CD4% baseline, median</td>
<td>12</td>
<td>13.5</td>
<td>13</td>
<td>0.057</td>
</tr>
<tr>
<td>log&lt;sub&gt;10&lt;/sub&gt; VL</td>
<td>5.77</td>
<td>5.67</td>
<td>5.73</td>
<td>0.159</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Age</th>
<th>No TB</th>
<th>TB</th>
<th>Total, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;5 y</td>
<td>45</td>
<td>12</td>
<td>57 (26)</td>
</tr>
<tr>
<td>3-5 y</td>
<td>21</td>
<td>13</td>
<td>34 (16)</td>
</tr>
<tr>
<td>1-3 y</td>
<td>54</td>
<td>27</td>
<td>81 (37)</td>
</tr>
<tr>
<td>&lt;1 y</td>
<td>19</td>
<td>27</td>
<td>46 (21)</td>
</tr>
<tr>
<td>Total, n (%)</td>
<td>139 (64)</td>
<td>79 (36)</td>
<td>218 (100)</td>
</tr>
</tbody>
</table>
Viral load suppression by ARV base

at month 6 on HAART

<table>
<thead>
<tr>
<th>NNRTI</th>
<th>LPV/r</th>
<th>RIT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart1.png" alt="Pie Chart" /></td>
<td><img src="chart2.png" alt="Pie Chart" /></td>
<td><img src="chart3.png" alt="Pie Chart" /></td>
<td><img src="chart4.png" alt="Pie Chart" /></td>
</tr>
</tbody>
</table>

Not suppressed | Suppressed | Unknown

at month 12 on HAART

<table>
<thead>
<tr>
<th>NNRTI</th>
<th>LPV/r</th>
<th>RIT</th>
<th>TOTAL</th>
</tr>
</thead>
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</tbody>
</table>

Not suppressed | Suppressed | Unknown

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KM curves - time to failure

KM time to failure curve stratified by TB co-treatment

KM time to failure curve stratified by age group

P=0.0002

p=0.0002

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Multivariate analysis

• Young age
• TB co-treatment

= INDEPENDENT RISK FACTORS FOR FAILURE

Other covariates: sex, WFA Z, baseline CD4 & VL, (ART)
Conclusion

TB

VIROLOGICAL FAILURE

PI (rit)  Young Age

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Discussion

• TB preventative strategies

• New ART strategies for HIV/TB

• Alternatives to Rifampicin

• Failure in infants: age surrogate for other factors?

• Clinical implications of virological failure