Tuberculosis in 2017: Searching for new solutions in the face of new challenges

6th TB Symposium – Ministry of Health of the Republic of Belarus, Republican Scientific and Practical Center for Pulmonology and Tuberculosis, and Médecins Sans Frontières

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Ambulatory Care Day 1 for Multidrug Resistant Tuberculosis

Jay Achar

MSF
Ambulatory Care Day 1 for Multidrug Resistant Tuberculosis

Programme experience from Uzbekistan
Overview

• Reasons for ambulatory care from day 1 (ACD1)

• Uzbekistan experience with ACD1
  – Background
  – Overall outcomes
  – Comparison of hospitalisation vs ACD1
Examined different strategies for reducing transmission

Infection control measures
- Limited effect alone
- Combination increased effect

Nearly 1/3 XDR cases prevented by:
- Mask use
- Reduced hospitalisation time

Involuntary detention predicted to increase transmission
The pooled treatment success rate was 66.4%.

No statistical difference between ambulatory and hospital treatment:

- Ambulatory success = 65.5% (95% CI: 55.1–74.6%)
- Hospital-based success = 66.7% (95% CI: 61.0–72.0%)
Review of Costs of MDR TB Treatment

• Limited studies

• The outpatient-based model of care could reduce the cost (per DALY averted) by over 50%

• Study in Uzbekistan currently being conducted
Reasons for Ambulatory Care Day 1 (ACD1)

- Reduced risk of transmission
- Likely lower cost
- Patient centred: patient choice about where to receive follow up
Uzbekistan experience of ACD1 for MDR TB Treatment
Background

- In 2010 MSF/MoH introduced new guidelines including ACD1 for MDR-TB

- Hospitalisation for
  - severe illness
  - XDR-TB
  - Unable to cope at home

- Between 2010 and 2015 MoH and MSF scaled up Comprehensive MDR TB care including ACD1 to all districts
Study Aim and Criteria

• Compare outcomes for MDR TB patients starting tx on ACD1 or in hospital

• Inclusion Criteria:
  – Confirmed MDR TB
  – Commenced on MDR TB regimen
  – Enrolled between 1/1/2010 and 31/12/2014

• Exclusion criteria
  – XDR TB (as this was hospitalisation criteria)
  – Missing baseline lab results (first line and second line DST)
  – Extrapulmonary TB (more likely to be hospitalised)
  – Started on Shorter MDR TB Regimen
<table>
<thead>
<tr>
<th>Baseline Characteristic</th>
<th>Hospitalised</th>
<th>ACD1</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>31.6</td>
<td>30.0</td>
<td>0.01</td>
</tr>
<tr>
<td>Female Gender</td>
<td>385 (50.8%)</td>
<td>266  (49.5%)</td>
<td>0.66</td>
</tr>
<tr>
<td>Days Hospitalised</td>
<td>84</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>BMI &lt;18.5</td>
<td>387 (51.1%)</td>
<td>216  (40.2%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Not Employed</td>
<td>671 (88.5%)</td>
<td>469  (87.3%)</td>
<td>0.52</td>
</tr>
<tr>
<td>Heavy Alcohol Use</td>
<td>70 (9.2%)</td>
<td>40   (7.4%)</td>
<td>0.26</td>
</tr>
<tr>
<td>Diabetes</td>
<td>42</td>
<td>34</td>
<td>0.71</td>
</tr>
<tr>
<td>HIV</td>
<td>1</td>
<td>2</td>
<td>0.44</td>
</tr>
<tr>
<td>Cavities</td>
<td>585 (79.3%)</td>
<td>279  (52.1%)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
## Month 2 Culture Conversion

<table>
<thead>
<tr>
<th>Start Treatment Site</th>
<th>M2 Culture Conversion</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Hospitalised</td>
<td>292 (38.5%)</td>
<td>758</td>
</tr>
<tr>
<td>ACD1</td>
<td>275 (51.2%)</td>
<td>537</td>
</tr>
</tbody>
</table>
ACD1 treatment outcomes

<table>
<thead>
<tr>
<th>Site</th>
<th>Success</th>
<th>Died</th>
<th>Failed</th>
<th>LTFU</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>482 (63.6%)</td>
<td>63 (8.3%)</td>
<td>36 (4.8%)</td>
<td>177 (23.3%)</td>
<td>758</td>
</tr>
<tr>
<td>ACD1</td>
<td>347 (64.6%)</td>
<td>26 (4.8%)</td>
<td>19 (3.5%)</td>
<td>145 (27%)</td>
<td>537</td>
</tr>
<tr>
<td>Total</td>
<td>829 (64.0%)</td>
<td>89 (6.9%)</td>
<td>55 (4.2%)</td>
<td>322 (24.9%)</td>
<td>1295</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
<td>Adjusted OR (95% CI)</td>
<td>p-value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------</td>
<td>----------------------------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Site</td>
<td>Hospital</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACD1</td>
<td>1.00 (0.78 – 1.28)</td>
<td>0.989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Per increasing year</td>
<td>0.98 (0.97 – 0.99)</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female Gender</td>
<td></td>
<td>1.42 (1.12 – 1.79)</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline DST</td>
<td>Km resistance</td>
<td>0.76 (0.59 -0.98)</td>
<td>0.036</td>
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<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>Employed</td>
<td>1.95 (1.30 – 2.92)</td>
<td>0.001</td>
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</tr>
<tr>
<td>Xray</td>
<td>Presence of cavities</td>
<td>0.88 (0.68 – 1.15)</td>
<td>0.345</td>
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<td></td>
</tr>
</tbody>
</table>
Summary findings

• No association between site of treatment initiation site and treatment success

• Female and employment status associated treatment success

• Increasing age and Km resistance associated with poor treatment outcome
Limitations

• Retrospective study

• Criteria for hospitalisation introduces bias
  – Impact lessened by gradual implementation

• Missing data
  – Missing lab data in particular led to exclusion

• Further work required to update to 2013 WHO definitions
Conclusions

• Patients started on ambulatory care for MDR TB treatment
  – In this study had less severe disease (BMI and x-ray cavities)
  – Were more likely to culture convert at 2 months
  – Similar rates of treatment success after accounting for measured factors
Conclusions

• Ambulatory Care from Day 1 can be an acceptable model of care for MDR TB treatment in contexts with high second line drug resistance
Acknowledgements

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- MoH, Republic of Uzbekistan
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- MSF Team
- The patients!