Organisation and delivery of healthcare for HIV/TB coinfected patients in Europe


The 14th European AIDS Conference 2013
Background

TB/HIV coinfected patients in Eastern Europe:

- Mortality rate one of the worlds highest
- Mortality rate 3-5 fold higher than in Western Europe
- Majority of deaths are TB-related

Regional differences in mortality across Europe can only partially be explained by factors such as:

- MDR TB, IDU, use of non-RHZ based regimens, non-use of cART, low CD4 cell count
Objective

- To analyse differences in the organisation and availability of TB/HIV healthcare and medicines across hospitals in Eastern Europe and Western Europe
Methods

• Cross sectional design
• Self-reported survey (online)
• All European HIV and TB hospitals/clinics within the TB:HIV study* invited to complete the questionnaire, Spring 2013
• Questions related to the organisation and availability of HIV and TB healthcare, medicines and the clinical management strategies for TB/HIV coinfected patients
• Descriptive statistics performed for comparisons between Eastern and Western Europe
• Two sided Fisher exact test for association

*Tuberculosis among HIV-positive Patients: an International Prospective Observational study: www.chip.dk
Results
Response rate = 85%

41 out of 48 European hospitals/clinics responded (treating > 1000 TB/HIV coinfected patients)

Clinics/hospitals responding:

• Eastern Europe (20)
  Belarus (5), Estonia (1), Georgia (1), Latvia (2), Lithuania (1); Poland (4), Romania (1), Russia (4), Ukraine (1)

• Western Europe (21)
  Belgium (1), Denmark (1), France (1), Italy (7), Spain (2), Switzerland (1), UK (8)

Non-responding clinics/hospitals:

• Eastern Europe (4)
  Belarus (1), Georgia (1), Russia (2)

• Western Europe (3)
  Spain (2), UK (1)
Reported health system organisation and integration of care aspects

- HIV and TB services at the same hospital: 100% in Eastern Europe, 55% in Western Europe (p<0.001)
- HIV and TB treated by the same doctor: 100% in Eastern Europe, 90% in Western Europe (p<0.001)
- TB treatment follow-up at the same clinic: 37% in Eastern Europe, 90% in Western Europe (p<0.001)
- All TB pts offered an HIV test: 90% in Eastern Europe, 90% in Western Europe (p=1.000)
- HIV pts regularly screened for TB: 82% in Western Europe, 40% in Eastern Europe (p=0.018)
- OST available for all IDU HIV/TB pts: 55% in Eastern Europe, 100% in Western Europe (p<0.001)

OST – opiate substitution therapy; IDU – injecting drug use
Reported clinical management strategies
TB diagnostic procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Eastern Europe</th>
<th>Western Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sputum culture standard procedure</td>
<td>95%</td>
<td>100%</td>
</tr>
<tr>
<td>Availability of rapid TB diagnostics</td>
<td>50%</td>
<td>70%</td>
</tr>
<tr>
<td>DST routinely performed</td>
<td>79%</td>
<td>95%</td>
</tr>
<tr>
<td>DST only if resistance suspected</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>DST is not available</td>
<td>11%</td>
<td>0%</td>
</tr>
</tbody>
</table>

p-values:
- Sputum culture standard procedure: p=0.605
- Availability of rapid TB diagnostics: p=0.333
- DST routinely performed: p=0.182
- DST only if resistance suspected: p=0.605
- DST is not available: p=0.231

DST = drug susceptibility testing
Reported clinical management strategies
Anti-TB therapy for TB/HIV patients

<table>
<thead>
<tr>
<th>Use DOT minimum for intensive phase of TB therapy for all patients</th>
<th>EE</th>
<th>WE</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>94% (16/17)</td>
<td>20%  (4/20)</td>
<td>&lt;0.001**</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rifampicin generally used as part of the initial anti-TB treatment</th>
<th>EE</th>
<th>WE</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% (19/19)</td>
<td>100% (20/20)</td>
<td>1.000</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2RHZE + 4RH Standard TB treatment for TB/HIV patients</th>
<th>EE</th>
<th>WE</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>75% (14/19)</td>
<td>95%  (19/20)</td>
<td>0.091</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2RHZE + 7RH Standard TB treatment for TB/HIV patients</th>
<th>EE</th>
<th>WE</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>16% (3/19)</td>
<td>5%   (1/20)</td>
<td>0.341</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rifabutin available unlimited</th>
<th>EE</th>
<th>WE</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>17% (3/18)</td>
<td>95%  (19/20)</td>
<td>&lt;0.001**</td>
<td></td>
</tr>
</tbody>
</table>

† Two sided Fisher exact test for association; 2RHZE = 2 months of rifampicin, isoniazid, pyrazinamide, ethambutol 4RH = 4 months of rifampicin, isoniazid; 7RH = 7 months of rifampicin, isoniazid
Reported access to 2nd line anti-TB drugs
Quinolones

- EE: Eastern Europe
- WE: Western Europe

**Quinolones overall**
- Eastern Europe: 11% (not available), 89% (limited), 100% (unlimited)
- Western Europe: 6% (not available), 33% (limited), 100% (unlimited)

**Levofloxacin**
- Eastern Europe: 6% (not available), 61% (limited), 90% (unlimited)
- Western Europe: 10% (not available), 39% (limited), 100% (unlimited)

**Moxifloxacin**
- Eastern Europe: 6% (not available), 39% (limited), 100% (unlimited)
- Western Europe: 18% (not available), 76% (limited), 83% (unlimited)

**Ofloxacin**
- Eastern Europe: 6% (not available), 11% (limited), 100% (unlimited)
- Western Europe: 11% (not available), 6% (limited), 100% (unlimited)

- p = 0.01
- p < 0.001
- p = 0.58
- EE = Eastern Europe; WE = Western Europe
Reported access to 2nd line anti-TB drugs II
Aminoglycosides/Peptides

- Aminoglycosides/peptides overall $p=1.000$
  - EE: 94%
  - WE: 95%

- Amikacin
  - EE: 11%
  - WE: 5%
  - $p=0.59$

- Kanamycin
  - EE: 28%
  - WE: 32%
  - $p=0.007$

- Capreomycin
  - EE: 33%
  - WE: 35%
  - $p=0.26$

- Aminoglycosides/peptides overall $p=1.000$
Reported access to 2nd line anti-TB drugs III

PAS = p-aminosalicylic acid

Cycloserine
p=0.50

PAS
p=1.000

Ethionamide
p=0.38

Prothionamide
p=0.55

Ethionamide/Prothionamide collected
p=0.43
Reported access to 3rd line anti-TB drugs

- **Clarithromycin**: EE 28% (limited), WE 100% (unlimited), p = 0.01
- **Linezolid**: EE 11% (not available), WE 67% (unlimited), p < 0.001
- **Thioacetazone**: EE 72% (not available), WE 60% (limited), p = 0.49
- **TMC207**: EE 83% (not available), WE 74% (limited), p = 0.09

TB:HIV - an international prospective observational study
Results

- Indication of intra-regional and intra-country variation!
Limitations

- Bias: self-reported questionnaire and not observed practice
- Small sample size (41 clinics/hospitals)
- Hospitals/clinics enrolled are not necessarily representative of Europe (major HIV and TB centres of excellence)
- Representation proportionally larger from Italy and UK in Western Europe, and Russia & Belarus in Eastern Europe
- Not adjusted for multiple comparisons
Summary

Compared to Western European hospitals, Eastern European hospitals in general reported:

• A more fragmented healthcare system
• Higher levels of directly observed treatment (DOT) of all TB patients
• Less access to opiate substitution therapy (OST)
• Less access to Rifabutin
• Less access to specific 2\textsuperscript{nd} and 3\textsuperscript{rd} line anti-TB drugs
Perspectives

In Eastern Europe, with the highest need for decreasing mortality and limiting MDR/XDR TB:

• Health system set-ups are to a less degree facilitating patient-centred care
• Access to appropriate medicines (anti-TB drugs, OST) is lower

Future studies

• Impact of the observed differences on patient outcomes including excess mortality?
• Changes over time?
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**TB:HIV study group:**


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