Collaborative studies of TTVs in Sub Saharan Africa

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ISBT / WP-TTID
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Network based on the Francophone Sub Saharan African working group for research in transfusion

Created on the basis of a training on transfusion safety-infectious diseases annually organized at the Institut Pasteur, Paris, since 2007

(JJ Lefrère, E Murphy, C Shiboski)

Majority of attendees are from Sub Saharan Africa

Several collaborative studies: >10 publications
2nd Quality Control in Francophone Africa, 2010
17 participating countries - 51 centers - 60 panels tested
3rd Quality Control in Anglophone Africa, 2011
12 participating countries - 43 centers - 43 panels tested

- Cap Verde: 2 centers
- Ghana: 3 centers
- Nigeria: 7 centers
- Zambia: 2 centers
- Botswana: 2 centers
- Zimbabwe: 1 center
- Uganda: 6 centers
- Kenya: 8 centers
- Tanzania: 7 centers
- Mauritius: 1 center
- South Africa: 3 centers
- Lesotho: 1 center
Conclusions

Recommendations

1) the use of ELISAs and especially Ag/Ab ELISAs should be recommended over rapid tests whenever possible

2) better training of laboratory technicians and improved algorithms for test interpretation

3) Organization of periodic external quality assessment to maintain an acceptable level of transfusion safety.
Estimate of the residual risk of transfusion-transmitted human immunodeficiency virus infection in sub-Saharan Africa: a multinational collaborative study

TRANSFUSION 2011;51:486-492.

Jean-Jacques Lefrère, Honorine Dahourouh, Alexis E. Dokekias, Maxime D. Kouao, Amadou Diarra, Saliou Diop, Jean-Baptiste Tapko, Edward L. Murphy, Syria Laperche, and Josiane Pillonel

<table>
<thead>
<tr>
<th>Country</th>
<th>Months (study period)</th>
<th>Person-years</th>
<th>Number of incident cases</th>
<th>Incidence rates per 100,000 per year (95% CI)</th>
<th>RR per 1 million donations (95% CI)</th>
<th>RR per number of donations (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>36 (Jan 1, 2006-Dec 31, 2008)</td>
<td>19,887</td>
<td>6</td>
<td>30.2 (12.3-69.3)</td>
<td>15.2 (2.0-72.1)</td>
<td>1,55,000 (1/500,000-1/13,900)</td>
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<tr>
<td>Congo</td>
<td>72 (Dec 1, 2002-Dec 5, 2008)</td>
<td>33,918</td>
<td>22</td>
<td>64.9 (41.7-100.0)</td>
<td>39.1 (6.9-104.1)</td>
<td>1,25,600 (1/145,000-1/9,600)</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>36 (Jan 1, 2003-Dec 31, 2005)</td>
<td>128,397</td>
<td>83</td>
<td>64.6 (51.8-80.6)</td>
<td>39.0 (8.5-83.9)</td>
<td>1/25,700 (1/118,000-1/11,900)</td>
</tr>
<tr>
<td>Mali</td>
<td>24 (Jan 1, 2006-Dec 31, 2007)</td>
<td>8,016</td>
<td>5</td>
<td>62.4 (23.0-154.6)</td>
<td>37.6 (3.8-161.0)</td>
<td>1/26,600 (1/283,000-1/8,200)</td>
</tr>
<tr>
<td>Senegal</td>
<td>36 (Jan 1, 2006-Dec 31, 2008)</td>
<td>21,756</td>
<td>4</td>
<td>18.4 (6.9-50.6)</td>
<td>11.1 (1.0-52.6)</td>
<td>1/90,200 (1/1,000,000-1/10,000)</td>
</tr>
</tbody>
</table>

The first international study for estimation of HIV RR in Sub Saharan Africa based on IR/WP model: 1/29,000 donations

Limitations (retrospective study)
- Misclassification of positive or negative donations due to the assays
- Model based only on repeat donors (less than 15%)
- Limited study period
Aims of the proposed study

Based on the Francophone Sub Saharan African working group for research in transfusion

1) Estimates of RR for HIV, HBV, HCV by detecting incident cases with NAT

2) Formation of a repository of antibody and NAT+ samples

3) Molecular epidemiology of viral isolates

NOT
A feasibility study of NAT in Africa

BUT
The first prospective study in the African continent aimed to directly estimate the RR
Study design

Collection and storage a total of 100,000 consecutive samples from operationally tested donations; e.g. 10,000 samples from each of 10 African countries (Sample size calculated on the basis of an expected IR at 0.10%)

Antibody positive samples removed and subjected to confirmatory testing using rigorous algorithms

Antibody negative samples tested by HIV, HCV and HBV NAT in pools; ID NAT on all members of positive pools