Acute HIV-1 Infection Is Highly Prevalent in Ugandan Outpatients Suspected of Malaria

Lisa Bebell1, Christopher Pilcher2, Grant Dorsey2, Diane Havel1, Moses Kanyama1, Michael Busch1, Charles Nugent1, Christopher Bentsen2, and Edwin Charles2


Introduction

Poster #700
– Complexity and cost of performing acute HIV testing: inaccuracy, cost, false results
– Inability to discern acute HIV infections and HIV testing in resource-poor setting

Aims

1. Prevalence and predictors of AHI among patients with clinical symptoms of malaria in rural Uganda
2. Feasibility of using pooled dried blood spots for HIV screening in rural settings

Methods

• Study design: Cross-sectional
• Sites: Governmental health centers in seven rural regions of Uganda
• Patients: At each site, 1000 consecutive patients were studied
• Sample and data collection: Malaria smears, dried blood spots (DBS) for anonymous HIV testing, age, and sex
• Malaria smears: Final results determined after concordant reading by expert microscopist
• HIV antibody testing: Dried whole blood collected on Whatman 903 filter paper
• RNA extraction: BioRad Genetic Systems HIV-1 Western Blot (WB) and DNA PCR (Ampliprint confirmation)
• HIV screening: EIA non-reactive or WB unconfirmed specimens tested by HIV-TMA (Gen-Probe,CA) for identifying acute HIV infection
• Speculation: These findings suggest opportunities for recognizing HIV infection in areas where testing is not available

Results

• Time line: May 2006 to February 2007
• Patient characteristics: 2893 adults (23 years of age), median age 24–30 years, 75–79% females
• Malaria: 494 (17%) malaria smear positive

<table>
<thead>
<tr>
<th>HIV Infections</th>
<th>324 (11.2%) stage I–IV infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wild-type</td>
<td>254 (11.8%)</td>
</tr>
<tr>
<td>DR1/2</td>
<td>58 (2.7%)</td>
</tr>
<tr>
<td>DR3</td>
<td>7 (0.3%)</td>
</tr>
<tr>
<td>DR4/5</td>
<td>3 (0.1%)</td>
</tr>
</tbody>
</table>

Figure 1. A vertically integrated approach to acute HIV screening

Table 1. Acute HIV determination and staging

Table 2. Number of HIV infections by site and Fiebig groupings

Conclusions

• We found evidence of acute HIV in 0.5% (1 in 200) to 6.0% (1 in 15) of all adult patients evaluated for suspected malaria in Ugandan rural health centers
• Rates of AHI dependent on local HIV and malaria burden
• HIV TMA can be performed on pooled DBS
• Additional work is needed to determine criteria for AHI screening in sub-Saharan Africa

Acknowledgments

We would like to thank the study patients and their families, the district health facilities and viable detection methods, and the community leaders and all of the health care workers.

References


Lisa Bebell
lmb2034@columbia.edu
San Francisco, CA 94107
1001 Potrero Ave.
Contact:

Linda Bebell
415.386.1945
Building 2, Room #4101
San Francisco General Hospital
1001 Potrero Ave.
San Francisco, CA 94110
mb2034@columbia.edu
Acknowledgments

We gratefully acknowledge the study patients and their families, the district health centers, and thecloth research collaboration efforts, especially Earle Wilcox. We are grateful to Health Topix for making the study possible and to the CDC for funding. Special thanks to the staff of San Pro, Bio-Rad and the CDC for their support. Thank you for your patience in the preparation of this poster.