Cognitive Dysfunction Among HIV+ and HIV- Individuals with Psychosis in Uganda

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What is psychosis?
Estimated number of adults and children newly infected with HIV | 2009

Total: 2.6 million [2.3 million – 2.8 million]
Introduction

- Mental and neurological disorders have an intertwined relationship with HIV, yet are often overlooked when AIDS interventions are planned and implemented.
Problem statement

- HIV prevalence 5% men 7.5% women
- ~ 1 million Persons Living with HIV/AIDS
- Newly infected individuals ~ 120,000

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HIV/AIDS - When to start treatment

By Elvis Basudde

ANTIRETROVIRAL therapy/treatment (ART) has proved to slow down the progression of AIDS, and reduces HIV-related illnesses. Clinical trials have demonstrated that the benefits of antiretroviral treatment outweigh the risks.

ARVs are well tested medicines, traditionally administered, based on a patient’s CD4 cell count. The number of CD4 cells reflects the body’s defence system.
- ART can improve mental health

- High burden of mental health problems in patients with HIV

- Limited access to ART

- 200,000 (39%) of those in need are on treatment

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Rationale

Prevalence among HIV positive individuals

- Cognitive impairment  7.3 – 37%  (Sacktor 2002)
- Depression                14 -20%     (Sing 2008)
- Psychosis                1.4-  15%    (Dolder 2004)
Objectives

- To compare the cognitive deficits among psychotic HIV positive and psychotic HIV negative individuals.
Study setting
### Neuropsychological Test Battery

<table>
<thead>
<tr>
<th>Test</th>
<th>Domain Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>International HIV Dementia Scale (IHDS)</td>
<td>Verbal memory, motor, and psychomotor speed</td>
</tr>
<tr>
<td>Finger tapping</td>
<td>Motor speed</td>
</tr>
<tr>
<td>Timed Gait</td>
<td>Motor Skills</td>
</tr>
<tr>
<td>Grooved Pegboard – Dominant and Non Dominant Hand</td>
<td>Motor Skills</td>
</tr>
<tr>
<td>WHO/UCLA Auditory Verbal Learning Test (AVLT)</td>
<td>Verbal Memory</td>
</tr>
<tr>
<td>Color Trails</td>
<td>Psychomotor Speed</td>
</tr>
<tr>
<td>Symbol Digit Modalities Test</td>
<td>Psychomotor Speed</td>
</tr>
<tr>
<td>Digit Span</td>
<td>Attention</td>
</tr>
</tbody>
</table>
Patient Flow chart

All admitted patients

HIV Positive 156
- Without Cognitive impairment
- With Cognitive impairment

HIV negative 322
- With Cognitive impairment
- Without cognitive impairment

Psychotic patients-478

FOLLOW UP 6 MONTHS
Study design: Longitudinal

Analysis: $\chi^2$ tests, logistic regression
Results

- Age: HIV Positive 33 years Vs HIV negative 29 years (p < 0.001)

- HIV positive females 71.2% Males 21.8 (p < 0.001)

- HIV↑: irritability, impaired content of thought guilt feelings and disorientation
Disorders among study participants by HIV status

- Mania
- Psy Nos
- Major Dep
- Schizo

[positive], [negative]
Cognitive function of study participants

<table>
<thead>
<tr>
<th>Cognitive function</th>
<th>HIV Negative</th>
<th>HIV Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Mild</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Severe</td>
<td>40%</td>
<td>90%</td>
</tr>
</tbody>
</table>

OR 2.62 95%CI 1.69-4.06  p-value = 0.004

Mild: SD 1 on 2 or more tests
Severe: SD 2 on 2 or more tests
Cognitive impairment at baseline for the types of psychoses
Normal Cognitive function within HIV + and HIV - participants

p value < 0.001
Discussion and Conclusions

- Cognitive impairment in psychosis was worsened by HIV infection

- Strategies for improved management of neuropsychological complications of HIV need to be put in place for holistic patient care.
Acknowledgments

- Supervisors
- Swedish International Development Agency
- Study teams in Mulago and Butabika Hospitals
- Study participants

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Table 3

Type of Psychosis by HIV status

<table>
<thead>
<tr>
<th>Condition</th>
<th>HIV-</th>
<th>HIV+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mania</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Major Dep</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Psychosis</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Schizo</td>
<td>15%</td>
<td>15%</td>
</tr>
</tbody>
</table>

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71.2% females p > 0.05