Title: Retention to Care of HIV pregnant females in Kumasi, Ghana

Brown Faculty: Aadia Rana, MD. Assistant Professor of Medicine in Division of Infectious Diseases, Awewura Kwara, Assistant Professor of Medicine in Division of Infectious Diseases

Host Institution: Komfo Anokye Teaching Hospital, Kumasi Ghana (KATH)

Host Advisor: Dr. Betty Norman, Physician Specialist at Komfo Anokye Teaching Hospital, and Lecturer at Kwame Nkrumah University of Science and Technology, Kumasi Ghana

Dates: 8/1/2012– 9/26/2012

Objective:

We aim to look at retention to care in the HIV infected pregnant females referred to Komfo Anokye Teaching Hospital (KATH) in Kumasi, Ghana. From UNAIDS 2010 report, there are an estimated 260,000 HIV infected individuals in Ghana with women over 15 comprising almost 60% of the cases. KATH located in Kumasi is the second largest teaching hospital in Ghana. It is the tertiary referral center for six of the ten regions of Ghana. At KATH, anti-retroviral therapy has been provided in their public clinic since January 2004. Over 5000 patients have been enrolled in the clinic, with over 2500 starting ART as of 2009. This will provide an adequate database for our review in looking at retention to care among pregnant females.

Specific Aims:

1. Identify proportion of HIV infected pregnant females referred for care at Komfo Anokye Teaching Hospital, Kumasi between January 1 2006 and December 31 2008 who are lost to follow-up (LTFU) in the postpartum period.
2. Compare the rates of LFTU in the pregnant population to the non-pregnant HIV infected females referred to the KATH clinic during this time period.
3. Identify predictors of loss to follow-up among HIV infected pregnant females referred to care at Komfo Anokye Teaching Hospital.

Background:

Universal access to anti-retroviral therapy has become standard of care globally among HIV treatment centers. Multiple studies have shown that access to ART has improved morbidity and mortality in this population across the globe. The concern now focuses on retention of these HIV infected patients to care. This is even truer in resource limited settings like sub-Saharan Africa. In one systematic review, only an average of 64% of patients who initiated ART in sub-Saharan Africa remained in care after three years. There have been several cohort studies looking at loss to follow-up rates among HIV infected patients in sub-Saharan Africa. One population that is of specific interest is pregnant females. Globally, there has been good news in a decrease in the amount of new HIV infections as per the UNAIDS 2010 report. Looking at the population as a whole, a little more than half of all patients with HIV are females. More specifically, close to 80% of all females with HIV live in sub-Saharan Africa. There are more females living with HIV than men in this region, which leads to concern of newly acquired cases through mother to child transmission. There has been great attention to reducing this transmission in the region, with HIV testing and ART prophylaxis initiation in antenatal care. In 2009, WHO updated recommendations in the use of ARVs to prevent HIV mother to child...
transmission. Specific recommendations at that time included: ARV treatment lifelong for all HIV pregnant women with CD4 count <350 or WHO stage 3 or 4; and ARV prophylaxis starting at gestational week 14 (or at time of presentation if later) and continued until one week after breastfeeding is complete. This recommendation was put in place to further decrease transmission rate from mother to child in the postpartum period.

However, one of the factors that have been associated with higher LTFU rates has been pregnancy. Boyels et al looked at factors that influenced retention in care in rural HIV clinic in South Africa. They looked at pregnancy, inpatient setting, and TB treatment at the time of ART initiation in 1800 patients. Pregnant females accounted for 10% of the population, however had a LTFU rate of 13.6% at four years of follow-up. This was much higher than the other categories. Similarly, another study comparing role of CD4 count, gender, and pregnancy in retention rates in a South African community clinic found that initiating therapy while pregnant had a higher LTFU outcome among all other groups. Specifically, the authors compared pregnant females versus non-pregnant females with LTFU rates of 23% to 8%, respectively. Another study looking at mortality and loss to follow-up among 2131 HIV infected ART naïve females found a higher LTFU among pregnant females compared to their non-pregnant counterparts. At three years of treatment, there was a 32% LTFU rate compared to 13% among pregnant versus non-pregnant.

It remains unclear as to why these females who initiated ART at time of pregnancy have lower retention rates than other populations. One thought has been that child care responsibility in the postpartum period interferes with the ability to stay in care. However, as the mentioned studies above have shown, the low retention rates have continued even at three years out. Another consideration is that these patients have little time to digest the diagnosis and come to terms with it before starting treatment due to their situation. There remains limited data on this population alone in retention to care and what factors contribute. However the importance of retention to care is significant in both the individual patient as well as public health concern.

This is a major public health issue as those individuals who are lost to care will not have suppressed viral loads, thus remaining at high risk of transmission among partners. In addition, in the postpartum period with breastfeeding there can be increased risk of transmission as well. In addition to transmission risks, individual risk to the patient includes increased morbidity and mortality. Adding to the public health concerns is the consideration of children who are becoming AIDS orphans. This study represents the first step in formulating the degree and predictors of LTFU among postpartum HIV infected women in Ghana, and will serve as the basis in-depth work and intervention development.

Methods:

Study Population: We will perform retrospective chart review of all pregnant female patients referred to Komfo Anokye Teaching Hospital HIV clinic between January 1 2006 and December 31 2008. Data will be reviewed through December 31 2011 allowing for at least three years of follow-up. Patients will be classified as either:

1. Optimal follow-up: completes at least 1 medical visit every 3 months.
2. Sub-optimal follow-up: completes 1 medical visit every 6 months.
3. Loss to follow-up: no HIV medical visits within 6 months
4. Non-engagers: completes first clinic visit, but no subsequent visits
Data Collection: Since the KATH clinic is funded by the National AIDS Control Program, there is a computer database with certain demographic and clinical information on every patient enrolled in the clinic. We will use the database to identify our study population. We will then do chart review of the medical records at the clinic to gather further clinical data for our predictors. At each visit, physicians use template forms for charting. We will collect data on age, occupation, education level, CD4 count at initial visit, HIV viral load (when available), co-morbidities (specifically TB and depression), ART initiation, regimen prescribed, treatment supporter, and distance from clinic to home. Specifically for our pregnant population will be age of gestation at presentation.

Analysis: A multivariate logistic regression analysis will be performed comparing the following characteristics of those classified as LTFU with the three other categories (optimal follow-up, suboptimal follow-up, and nonengagers). Demographic and medical variables of interest abstracted from the database and medical chart will include: age (median) at entry to care, CD4 count at initial visit, co-morbidities (specifically TB and depression), gestational age, distance from clinic to home, and ART initiation during 1st year of presentation to care. Those who are deceased or transferred care will be excluded from comparison analysis.

Limitations: Given that this is a retrospective chart review, analysis will be based on data that is available, which in some cases may not be complete. The generalizability of the data may be limited to only resource limited settings such as sub-Saharan Africa given our study population. However this region remains an area of great concern in the fight against the HIV epidemic.

Plans for Dissemination:

After data analysis, we plan for dissemination of data in the following ways in collaboration with our colleagues at Komfo Anoyke Teaching Hospital:

1. Abstract submission to IDSA conference
2. Infectious Disease Lecture at weekly ID conference
3. Manuscript submission to an International HIV Journal such as Lancet ID.
4. Presentation at Komfo Anoyke Teaching Hospital Clinic staff to plan to formulate interventions to target those at highest risk to remain in care.

Prior Experience/Career:

I have been fortunate to have had the opportunity to take multiple global health trips. After my first year of medical school, I traveled to Zambia for a three week clinical trip where we set up mobile clinics around the city of Kitwe. During this trip, I also had the chance to do public health education on safe water, sanitation, safe sex practice, and immunizations with leaders of the church community in hopes that they would lead their communities. During my fourth year of medical school, I traveled to the northern region of Ghana and spent a month at a mission hospital doing a variety of clinical work including inpatient and outpatient. The last
three years during my residency I traveled to Honduras through Shoulder to Shoulder to continue work on establishing clinic and preventative medicine in village of Ocote Paulino.

In addition to my global health experience, I am also currently working on retention to care project among our HIV patients at the Immunology Center at the Miriam Hospital with Dr. Aadia Rana as my mentor, and Dr. Fizza Gillani, the Immunology Clinic Database (ICDB) manager. We are conducting a retrospective review of newly diagnosed HIV infected patients seen in our clinic from 2004 – 2006 and following their longitudinal care to measure their retention in care, and ascertain predictors of loss to follow-up. The results of this study will aid in identifying both barriers and facilitators to consistent HIV care. This study requires database abstraction, chart review, and statistical analyses similar to what we are proposing for the project in Ghana. We will be able to use our experience from this project on our Kumasi project as we continue our collaborative work.

**Estimated Budget:**

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airfare: Round trip Boston to Accra</td>
<td>$1500</td>
</tr>
<tr>
<td>Room and Board: Lodging~ $40/night x 8 weeks</td>
<td>$2000</td>
</tr>
<tr>
<td></td>
<td>Board ~ $750</td>
</tr>
<tr>
<td>Communication: Internet access</td>
<td>$300</td>
</tr>
<tr>
<td></td>
<td>Cell phone</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**References:**


