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Full Length Research paper

Efficacy and challenges of adherence to anti retroviral therapy: Experience from Nyeri Provincial Hospital, Kenya

M. W. Mutugi*, L. M. Kaguu and S. N. Maangi

Nyeri Provincial Hospital, Kenya.

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A study was conducted to investigate the success and challenges of antiretroviral therapy among patients attending Nyeri provincial hospital in Kenya. The success of treatment was monitored by viral load, CD4 cell count and weight. On the other hand, challenges of ART were investigated by administering a questionnaire. The results indicate that the quality of life of the patients improved markedly with increase in weight and reduction in number of opportunistic infections as well as decreased hospitalization and ability to return to work. There was 10 fold increase in weight of the patients, a 69% increase of CD4 cell count in the first 3 months and 86% in 9 months. There was also a 71.9% mean decrease of viral load in the first 3 months and 87% mean decrease of 9 months. There were side effects perceived by patients to be associated with ART, the most common being chest pains, coughing, headache, diarrhea and malaise. These in addition to cost and forgetfulness were cited as contributors to an adherence rate of 62%. It is evident that anti-retroviral therapy is useful in increasing the quality of patients infected with HIV. However, issues related to poor adherence associated with adverse side effects, toxicity and cost in a resource constrained environment may erode long-term benefits both to the individual and the community.

Key words: HIV, AIDS, ART, HAART, adherence, resistance.

INTRODUCTION

HIV is the cause of AIDS, a potentially deadly illness that interferes with the body's ability to fight infection and certain types of cancer. Although to date AIDS has no cure, it is possible to delay the progression of HIV infection to AIDS by the use of highly effective anti retroviral therapy (HAART).

Combination of antiretroviral regimes has revolutionized the treatment of HIV infection, resulting in dramatic reductions in morbidity, mortality and healthcare utilization. Effective antiretroviral therapy (ART) consistently results in sustained suppression of HIV replication, resulting in gradual increases in CD4 T- lymphocyte count, sometimes to normal levels. ART does not eradicate the virus, as viral replication continues in lymphoid tissues despite suppressive treatment.

However, durable suppression of viral replication, accompanied increase in CD4 count slows disease progression, sometimes even in persons with advanced HIV infection (Maenza and Flexner, 1998).

Inarguably, the clinical effectiveness of ART has been improved markedly over the last few years and significantly contributed to the decrease in the incidence of new AIDS cases and AIDS associated deaths. The overall effect of ART is prolonged survival in persons infected with HIV leading to their contribution to various sectors of the economy (Wood et al., 2003).

Despite the positive effects of ART use, there are challenges associated with life-long administration of at least 3 different antiretroviral drugs. Thus, up to 25% of patients discontinue their initial regimen because of treatment failure (inability to suppress HIV viral replication to below the current limit of detection, 50 copies/ml), toxic effects or noncompliance within the first 8 months of therapy (Maenza and Flexner, 1998). In addition, there may be noxious side effects such as nausea, anxiety, confusion, vision problems, anorexia, insomnia, taste perversion, abnormal fat distribution, allergic reactions and altered mood, thinking and sleep patterns are significantly associated

*Corresponding author. E-mail: mwmutugi@yahoo.com.

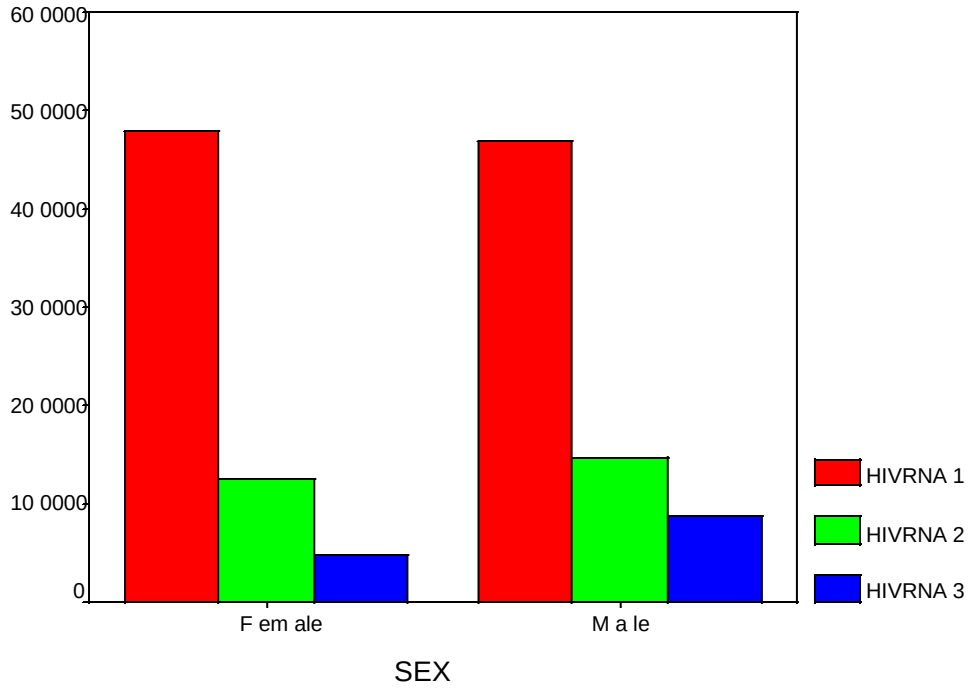

Figure 1. Mean viral loads taken every three months according to sex.

with non-adherence (Bartlet, 2002; Ammassari et al., 2001).

Medication adherence means a patient takes the prescribed dose of prescribed medications on the prescribed schedule, following prescribed dietary instructions (Cheever, 2004). In HIV care, failure to adhere has serious consequences at both the individual and the community levels. These range from increase in viral load, decrease in CD4 cell count and progression of disease in a person who previously had remission. This may lead to development of viral resistance to particular ARVs requiring a change to a more expensive or toxic regimen. In addition the risk of transmitting the resistant viral strain is especially real during periods of treatment failure when there is an increased viral load. Such poor adherence is common in resource constrained settings, such as Kenya, where prevalence is high and trained medical personnel, laboratory services and drug management systems severely limited.

Considering that ART usage is a life long commitment, it is desirable to start therapy at the appropriate time, after thorough counseling, when the likelihood of adherence is best. In this regard the objective of this study was to determine factors that impact on adherence in a resource constrained environment to ensure best treatment outcomes.

METHODOLOGY

This study was conducted in a period of 9 months at the Nyeri provincial hospital. 68 HIV positive patients on ART were randomly selected and investigations carried out for a period of 9 months. These patients were on the recommended first line regimen of 2 nucleoside reverse transcriptase inhibitors and a protease inhibitor; lamivudine, stavudine and either efavirenz or nevirapine.

Every 3 months, venous blood was aseptically collected from the patients and used for determination of CD4 count (cell cytoflow method), viral load (reverse transcriptase assay), liver function as well as renal function. The patients' weights were also taken on monthly basis for 9 months and the weights recorded, respectively. In addition, each patient filled a questionnaire related to adherence to ART regimen within the last month, side effects as well as financial support to access treatment.

RESULTS

As shown in Figure 1, there was a significant decrease in viral load after taking ARVs ($P < 0.05$). The decrease, more evident in the first 3 months, was observed more in females, although this was not significant. Within the 9 months of the study, mean CD4 cell counts significantly increased from 180 to 320 cells /µl ($P < 0.05$). This is shown in Figure 2. In addition, there was an increase in weight of patients taking ARVs (Figure 3). On paired t-test, this increase was statistically significant ($P < 0.05$). All the patients interviewed indicated a marked reduction of opportunistic infections, decreased hospitalization and ability to return to work.

Patients associated certain conditions with ARV use. Most common of these were pulmonary-related conditions such as coughing and chest pain (40%) followed by diarrhea, headache and malaise (32%). Other conditions cited by patients were fever, colds, skin rashes, itching,

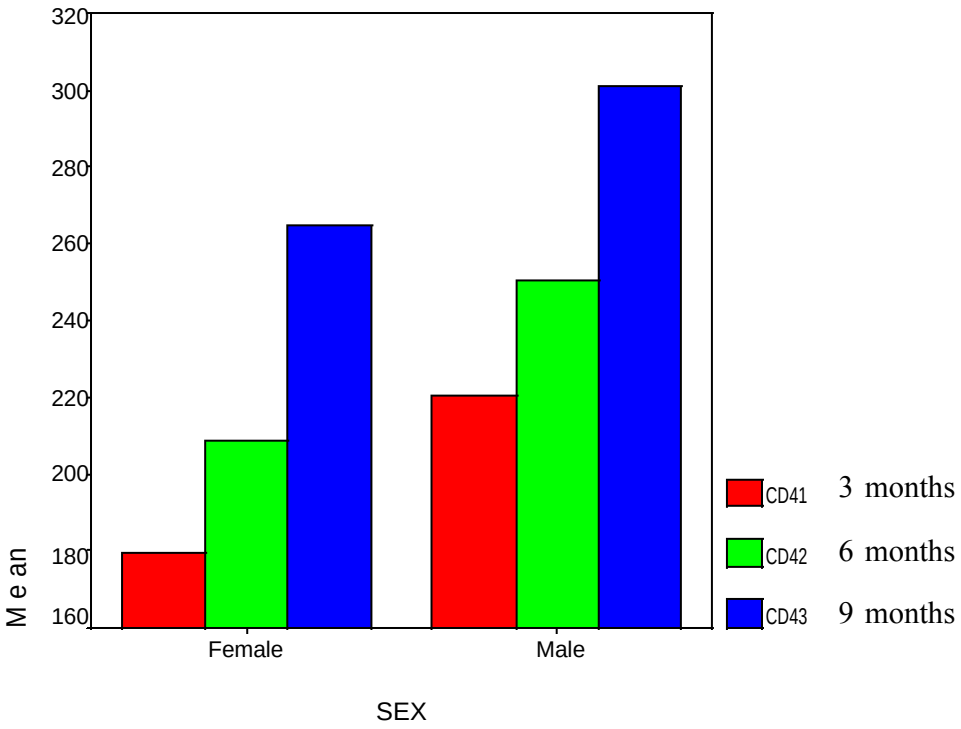

Figure 2. Mean CD4 cell/µl after every 3 months according to sex.

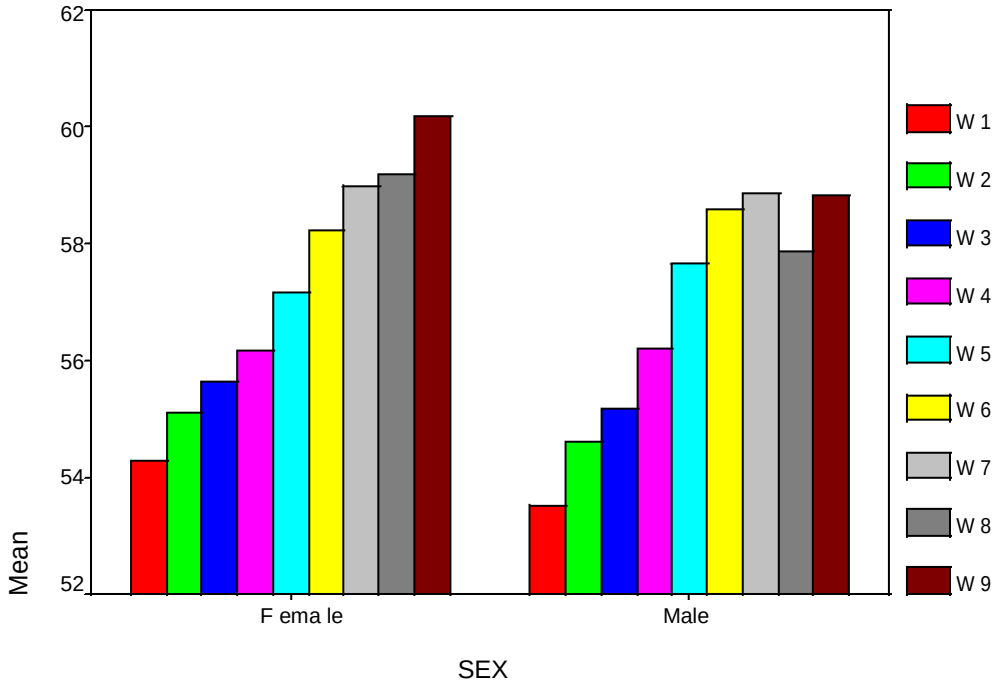

Figure 3. Mean weights of 68 patients on ARVs at Nyeri Hospital.

nausea, wounds and oedema.

Many patients confessed to not having taken their ARV regimen as recommended. Overall, adherence of the patients interviewed was 62%. The majority of them cited cost and adverse side effects (48 and 42%, respectively) as the limitations (Figure 4). On further interrogation on

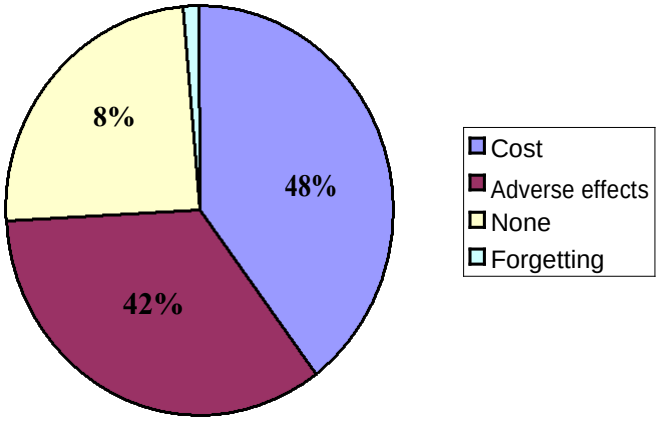

Figure 4. Limitations of patients in adhering to ARV regimen.

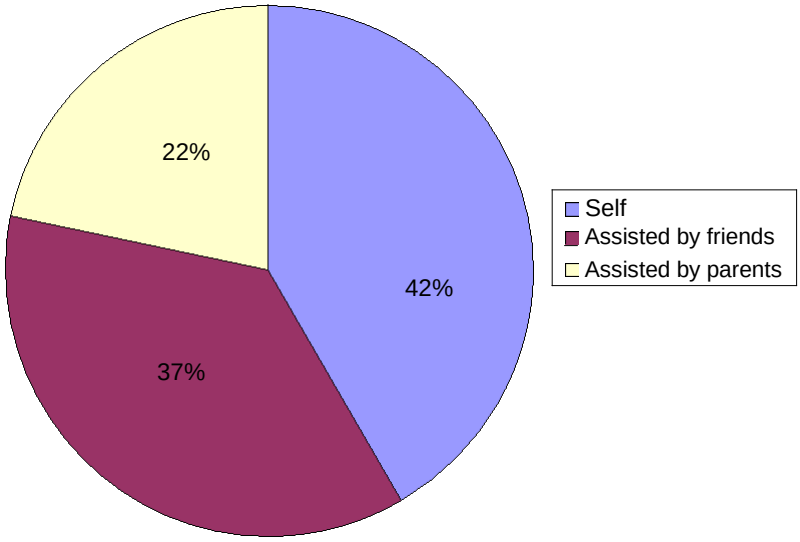

Figure 5. Sources of financial assistance to patients on ARV.

the issue of cost, it was evident that 42% of patients bore the cost of ART use while the rest were supported by parents and friends (37 and 22%, respectively). Figure 5 cited limitations of taking ARV.

DISCUSSION

The results of the study indicate that there was suppression of HIV replication by the administration of the recommended treatment regimen as indicated by the decrease in viral load and an increase of $CD4^+$ cell counts. The quality of life of the patients improved markedly with increase in weight and reduction of opportunistic infections and decreased hospitalization that led to general well being and ability to return to work. This visible change in the health of an HIV-positive person on ART is important in reducing stigma especially where HIV is associated with death.

Adherence however was a challenge mainly due to thecost of accessing treatment as well as perceived side effects. Although ART is freely available at all government health facilities such as Nyeri provincial hospital, patients may not have adequate financial resources for transportation to the hospital. This may have especially been a challenge where the patients were unable to earn a living due to opportunistic infections and general ill health. In such situations, the family may be unable to supplement this need especially in Kenya where more than half of the people live on less than a dollar a day (Central Bureau of Statistics, 2003).

Non-adherence to prescribed therapy is a ubiquitous problem in medicine. In chronic diseases, including asthma, diabetes and hypertension, only 50% of patients

take their medication as prescribed more than 80% of the time. The same is true of patients with HIV infection. However, because of the rapid multiplication and mutation rate of HIV, very high levels of adherence to antiretroviral schedules are particularly necessary to avoid viral resistance. An adherence rate of 95% is required to achieve maximum viral suppression to undetectable levels (Paterson et al., 2000). Failure to adhere has serious consequences at both the individual and the community level. Thus, in comparison with patients who are adherent to antiretroviral therapy (ART), non- adherent patients have higher mortality, increased viral load, lower CD4 cell count, faster progression of disease and increased hospital days (Paterson et al., 2000; Ammasari et al., 2001; Wood et al., 2003). In addition, there is a higher risk of transmission and likelihood of development of viral resistance. Poor adherence is common in resource constrained settings such as Kenya and as observed in this study is influenced by cost and unpleasant side effects. It is reported that poverty associated factors that impact on adherence are literacy levels, income and stable housing and ability to maintain medical appointments (Cheever, 2004). Such are the conditions found in many areas of rural Kenya. In addition, in resource poor settings, prevalence is also high and trained medical personnel, laboratory services and drug management systems severely limited. These also contribute to poor management and further challenge HIV patient care.

In conclusion, this study documented the improvement of the quality of live in HIV patients on ART attending Nyeri provincial hospital. It however indicated that the benefits of ART may be eroded by poor adherence mostly associated with side effects as well as financial constraints. Since adherence is an indicator of treatment outcome it is important to start treatment when the patient is “ready” and thus increase the level of adherence (Mannheimer et al., 2002; Stone, 2001). This can be achieved at individual and support group levels and should involve the following:

i.) Engaging patients in medication tailoring thus fitting the dosing times to daily routines including meal times. ii.) Training patients to know exactly how to take their medication while dealing with concerns of and confidentiality.

iii.) Education on side effects to expect, what they can to do to manage them, and when to call the provider.

iv.) Ensuring patients understand the serious consequences of poor adherence and what to do in the event of a late or missed dose.

vi.) Encouraging patients to consider status disclosure so as to involve family and caretakers as part of their support network.

These recommendations can be implemented by availing ART at district hospitals and health centers that are closer to patients, in order to reduce transport costs and increase access.

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