IJBCP   International Journal of Basic & Clinical Pharmacology

Original Research Article

Comparative evaluation of adherence to antiretroviral therapy

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ABSTRACT

Background: While treating patients with HIV infection it is important to achieve more than 95% compliance to ART (Antiretroviral Therapy) in order to suppress viral replication.

Methods: This was a retrospective, observational, record based study of HIV positive patients undergoing treatment with ZLN (zidovudine 300 mg, lamivudine 150 mg, nevirapine 200 mg) and TLE (tenofovir 300 mg, lamivudine 150 mg, efavirenz 600 mg) regimens. The treatment charts of the patients fulfilling inclusion and exclusion criteria were reviewed.

Results: Analysis of adherence showed that there were 12 patients out of 150 on ZLN regimen and 31 patients out of 150 on TLE regimen were nonadherent to the respective treatments.

Conclusions: In this observational study patients on ZLN regimen were showing greater compliance than TLE regimen.

Keywords: Adherence, Anti retroviral treatment, TLE, ZLN

INTRODUCTION

In 1990s, antiretroviral drugs were given as monotherapy, over time the standard care shifted to the combination of antiretroviral agents (ARVs). The advent of highly active antiretroviral treatment (HAART), for the treatment of HIV-1 infection was cardinal in reducing the morbidity and mortality associated with HIV-1 infection and AIDS.[1-3] The World Health Organization (WHO) definition of adherence is, "the extent to which a person's behaviour-taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider".[4] Adherence is the ability to take prescribed drugs in the recommended dosages and schedules and following any special instructions e.g. empty stomach, after meals etc.[5] While treating patients with HIV infection it is important to achieve more than 95% compliance to ART (Antiretroviral Therapy) in order to suppress viral replication. Poor adherence to antiretroviral therapy is associated with increased mortality and development of drug-resistant HIV strains. Many of the studies have shown that optimal compliance is 95% and compliance less than 95% is associated with virological failure rate of more than 50%.[6]

Authors, therefore, conducted a retrospective analysis of ART adherence by consulting the charts of 300 HIV-positive adults receiving first-line ART ,150 patients each on ZLN (zidovudine 300 mg, lamivudine 150 mg,

nevirapine 200 mg) and TLE (tenofovir 300 mg, lamivudine 150 mg, efavirenz 600 mg) regimens. The study was conducted in ART centre of Government Medical College and Rajindra Hospital, Patiala, Punjab, India.

METHODS

This was a retrospective, observational, record based study of HIV positive patients undergoing treatment with ZLN and TLE regimens. The treatment charts of the patients fulfilling inclusion and exclusion criteria were reviewed.

Inclusion criteria

- Age greater than 18 years
- Patients registered at ART centre in Government Medical college and Rajindra hospital, Patiala.
- Patients who are on ART regime containing EFV or NVP.

Exclusion criteria

- Pregnant patients
- Patient on ART not containing either of NVP and EFV

Study population

The study was carried out in the ART centre of Government Medical college and Rajindra hospital, Patiala.

Sample size

Study was conducted on the treatment charts of 300 patients attending the ART centre of Government Medical college and Rajindra hospital, Patiala. Out of these 150 patients were on the ZLN and 150 patients were on TLE regimen of antiretroviral drugs.

Study sequence

The information written on the treatment charts about the number of pills given to the patients and number of pills taken by the patients. This was retrieved from the charts of 300 patients. The formula for calculation of adherence was applied for calculating the adherence. Descriptive statistics was applied on the results.

Adherence Rate was calculated by dividing number of pills actually taken by the number of pills prescribed for one month multiplied by 100.[7]

Number of pills expected to be taken - Number of pills missed
x 100

Number of pills expected to be taken

Adherence was defined as value >95 %.[8]

RESULTS

A total of 300 treatment charts of HIV positive patients on ART were reviewed. The mean age of the patients was 38.23 years. The mean age of the patients in group A was 38.72 (±10.5) years while in group B was 37.75 (±11.57) years. Statistically, there was no significant difference in the mean age of both the groups (p value 0.4460).

Analysis of adherence showed that there were 10 patients out of 150 on ZLN regimen and 28 patients out of 150 on TLE regimen were nonadherent to the respective treatments. Out of total of 150 patients on ZLN regimen 138 patients had adherence >95%. While out of total of 150 patients on TLE regimen 119 patients had adherence >95% (Table 1).

Table 1: Proportion of patients adherent to antiretroviral treatment regimens.

Adherence (%)	No. of patients adherent to ZLN regimen (%) (n=150)	No. of patients adherent to TLE regimen (%) (n=150)
75-80	1.0 (0.7)	3.0 (2.0)
81-85	0.0 (0.0)	2.0 (1.3)
86-90	5.0 (3.3)	6.0 (4.0)
91-95	6.0 (4.0)	20 (13.3)
96-100	138 (92)	119 (79.3)

There was 1 (0.7%) out of 150 patients put on ZLN regimen showed very low level of adherence which lies between 75-80% while 3 (2.0%) patients out of 150 on TLE regimen showed very low level of adherence which lies between 75-80%.

There were 5 (3.3%) out of 150 patients put on ZLN regimen showed very low level of adherence which lies between 86-90% while 6 (4.0%) patients out of 150 on TLE regimen showed very low level of adherence which lies between 86-90%.

There were 6 (4.0%) out of 150 patients put on ZLN regimen showed borderline adherence which lies between 86-90% while 20 (13.3%) patients out of 150 on TLE regimen showed borderline adherence which lies between 91-95%.

DISCUSSION

This study compares the levels of adherence to two different regimens in HIV-infected individuals being treated in ART centre of Government Medical college and Rajindra hospital, Patiala. Adherence was calculated from the information retrieved from the treatment charts of the patients on different regimens. It was found that 92% of patients on ZLN regimen showed adherence (>95%) while 79.3% of patients on TLE regimen showed adherence (>95%).

From the study done by Hemasri et al, both ZLN and TLE regimens for treatment in HIV patients are efficacious in improving CD4 count (p value: 0.016).[9] The Study done by French et al also demonstrates that both the regimens are relatively safe and equally efficacious. [10]Another study showed that ZLN regimen was equally effective in increasing CD4 + T cell count as the other regimen used by the ART centre.[10] Efavirenz based therapy is now a standard of care in management of HIV infected patients with long term efficacy data are available. While in developing country like India nevirapine based HAART is cheap compared to efavirenz based therapy.[11]

CONCLUSION

In this observational study patients on ZLN regimen are showing greater compliance than TLE regimen. However, studies with greater sample size are required further to corroborate the findings of the study.

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