A Study on Drug Compliance Among HIV Infected patients in Eluru, Andhra Pradesh State

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Abstract

Background: HIV affects 40.3 million people worldwide. Anti-Retroviral Therapy (ART) is the treatment of choice for HIV infected patients and Nonadherence to ART is the most important factor in treatment failure and drugs resistance. High levels of adherence is necessary for reliable viral suppression and prevention of resistance, disease progression, and death.

Aim & Objectives: To estimate ART adherence levels among HIV infected patients with focus on their socio demographic profile & reasons for ART noncompliance.

Settings & Design: A community based Cross Sectional Study conducted in Eluru was conducted.

Methods & Materials: A total of 230 HIV positive patients attending ART centres in Eluru District, Andhra Pradesh were considered by simple random sampling technique and study was done for a period of 3 months. IEC clearance was obtained.

Statistical analysis: Collected data was entered in Microsoft Excel SPSS trial version-22.

Results: Among study subjects, 71.7% were adherent to ART whereas 26.95% were non adherent. Among Non-adherent subjects, 46.77% were non-compliant as they stopped medicines after feeling better & 20.96% were non-compliant due to cost of transport for taking medicines at ART centres. Majority of study subjects were housewives with 30.86% followed by farmers or agriculture work.

Conclusion: Majority of study participants were females & more than half of study subjects were in age group of

40-60 years. Most of the study subjects belong to lower middle class& ART adherence was 71.7%.

Keywords: HIV, Compliance, Anti-Retroviral Therapy (ART), Adherence.

Introduction

Human Immunodeficiency Virus (HIV) affects 40.3 million people worldwide[1]. Asia has an estimated prevalence in the region of 8.3million, with 5.2 million being in India, giving an Indian adult HIV prevalence of 0.9%[2]. Worldwide, the major route of transmission is unprotected heterosexual intercourse (>75%)[3]. Homo sexual intercourse is the second commonest route of trans mission. Unfortunately, 5-10% of new HIV in fections, worldwide, are in children ;> 90% of these are infected during pregnancy, birth or through breast feeding[4].

Combination therapies of anti-retroviral drugs (ARV) are Thetreatment of choice in HIV and non-adherence is the most important factor in treatment failure and development of resistance. To make sure that HIV treatment works effectively, it is important that the drugs are taken on time. Non-adherence results in virologic, immunologic and clinical failure, and the development of viral resistance, complicating further treatment and increasing the risk of transmission of resistant virus[5].Valid methods to assess adherence are thus an essential component of ART programs[6]. If 95% medication adherence is not achieved then treatment success becomes precarious.

Concerns about incomplete medication adherence among patients with low socio-economic status have been an important consideration in expanding the access to anti-retroviral therapy[7]. With a growing prevalence of HIV across all areas of Indian society there is a growing number needing treatment and greater strain on services to provide ART. This in turn means a greater number who potentially have medication adherence issues and questions what facilitates medication adherence from an individual and public health perspective. Research indicates that consistently high levels of adherence are necessary for reliable viral suppression[8,9] and prevention of resistance[10], disease progression[11], and death [12].

In view of high prevalence of HIV in India and the lack of data surrounding medication adherence in this population. Therefore, this study was aimed to estimate ART adherence levels among HIV infected patients with focus on their socio demographic profile & reasons for ART noncompliance.

Materials and methods

This was a community based Cross Sectional Study conducted in Eluru, Andhra Pradesh for a period of three months (1st December 2019 to 29th February 2020). HIV Positive Patients attending ART centres living in Eluru were considered as study population. Patients aged more than 20 years, patients of all genders & who gave consent were included in study and those who are terminally ill, difficult to communicate & patients with psychiatric illness were excluded. Sample size was calculated by using the formula $n=4pq/l^2$. According to the study conducted by Achappa, et al[13]in South India (Karnataka) prevalence of adherence to ART among HIV patients was found to be 63.7%. Prevalence 'p' was assumed as 63.7% & relative precision 'l' was taken as 10% to calculate the sample size& final sample obtained227 which was rounded off to 230. The sample was achieved by adopting Simple random sampling technique. Clearance from the Institutional Ethics Committee was obtained prior to the start of the study. After obtaining permission from ART Medical Officer at GGH Eluru, HIV patients attending at ART centre& living in Eluru were identified

through records at ART centre and addresses of the selected participants were traced.

Help from local ASHA worker was taken for guiding to the house of study participant & MSW was sent to the house of participant one day prior to data collection for counselling & convincing to participate in study. At every single step of data collection, a very strict privacy was maintained in such a way that even the neighbors of participant don't know about data collection & participation.

On the day of data collection, principal investigator visited the house of study participant and data collection was done by personal interview method by using predesigned and pretested questionnaire.

The data collected was analysed using Microsoft Excel and Trial version of SPSS 23 statistical packages. The data was then presented in proportions and percentages using tables, bar charts and pie charts, etc. Ethical clearance was obtained from ASRAMS BHR Ethics Committee. IEC ref no. IEC/ASR/APPROVAL NO/42/ 2019. Date of approval is on November 14, 2019.

Observations and results

In the present study, Table1 shows that majority of subjects were between 40 and 60 years of age i.e54.78 % whereas 6.94 % were less than 20 years and 38.25 % were between 20and 40 years of age. It also shows that about 56.1 % were females and 43.9% were males. It shows that majority of subjects were Hindus i. e 52.6% whereas 13.04 were Muslims and 34.34% were Christians.

The majority of study subjects were housewives with 30.86% whereas 23.47% were farmers or related to agriculture work, 16.95% were lorry drivers, ,10% belongs to other occupational status. Table1 also shows that majority of study subjects were married with

43.91% whereas 20.43% were singles, 14.78% were widowed and 20.86% were separated.

Table 2shows that 26.95% of study population were non adherent to ART whereas 71.7%were adherent to ART.

Table 3 shows that majority of study subjects have CD4 count less than 500 i.e 66.53% whereas 33.47 % have CD4 count more than 500.

Table 4 shows that majority of study subjects have GI symptoms as side effects i.e 33.47% whereas 29.13% with no side effects, 14.34% with dizziness as side effects, 6.95% with skin rashes as side effects, 10.86 % have psychological disturbances, 5.21% have limbs weakness.

Fig 2 shows that majority of study subjects i.e 46.77% were non-compliant as they stopped medicines after feeling better, 20.96% were non-compliant due to cost of transport for taking medicines at ART centres, 17.74% have difficulty in taking medicines along with them wherever they go, 8.06% were non-compliant due to the side effects of the drugs, 3.22% of study subjects have habit of skipping medicines, 3.22% were non-compliant as they take drugs for other health issues and neglect taking ARV drugs.

Table 1: showing socio-demographic profile of study subjects.

Socio-demographic characteristic	Frequency	Percentage
Age		
1-20 Years	16	6.94
20-40 Years	88	38.25
40-60 Years	126	54.78
Gender		
Male	101	43.9
Female	129	56.1
Religion		

Hindu	121	52.60
Muslim	30	13.04
Christian	79	34.34
Occupation		
Farming/Agriculture	54	23.47
Labourer / Coolie	29	12.60
Lorry Driver	39	16.95
Student	14	6.08
Housewife	71	30.86
Others	23	10
Marital status		
Single	47	20.43
Married	101	43.91
Widowed	34	14.78
Seperated	48	20.86
Socio-economic status (modified BG Prasad Classification) Class I		
Class II	5	2
Class III	11	5
Class IV	71	31
Class V	92	40
	51	22

Fig 1: Distribution of study subjects according to art initiation.
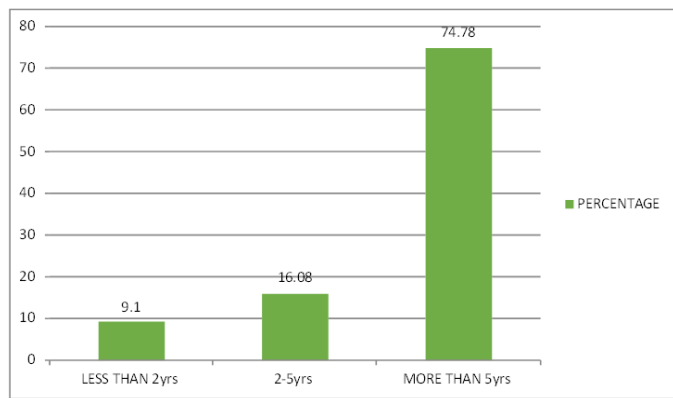
Table 2: Distribution of study subjects according to non-adherence levels to art

Art levels	Frequency	Percentage
Adherence levels	168	71.7
Non-adherence levels	62	26.95
Total	230	100

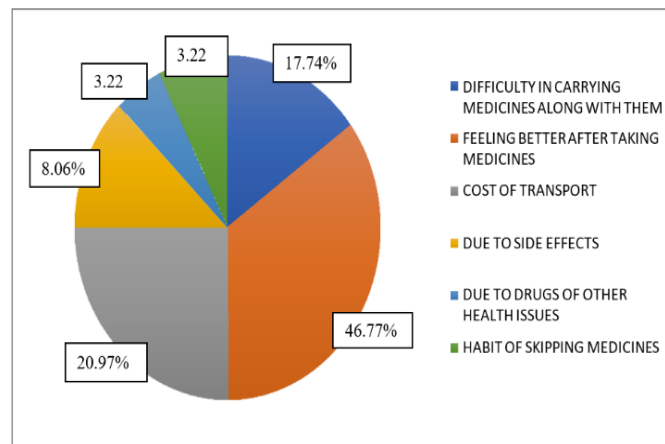Fig 2: Distribution of study subjects according to reasons for non-compliance.

Table 3: Distribution of study subjects according to cd4 count

Cd4 cell count	Frequency	Interval
<500	153	66.53
>500	77	33.47
TOTAL	230	100

Table 4: Distribution of study subjects according to side effects

Side effects	Frequency	Percentage
Dizziness	33	14.34
Skin rash	16	6.95
Gi symptoms	77	33.47
Psychological disturbances	25	10.86
Weakness of limbs	12	5.21
No side effects	67	29.13
Total	230	100

Discussion

The rate of adherence in study sample was 71.7% which was significantly lower when compared with other studies in Asian developing countries[14-15]. Due to socio-cultural and economic restrictions put upon women in Nepal, women found it far more difficult to adhere to their ART medication than their male counterparts did[17]but according to this study, females were more adherent than males. Achappa. B et al concludes that literate people had low adherence to ART[13]and the same is concluded in our study. Some studies concluded that Hindu women during Teej and Muslim patients in Ramadan have problems taking tablets in the morning because of Ramadan as they fast[14].Being illiterate, low economic status and starting ART within the past two years were all associated with increased likelihood of non-adherence to ART in our study and similar findings have been reportedin other studies[17-18]. Of note, People whose residence is far away from ART Centre were less likely to achieve optimal adherence. This issue may be due to socioeconomic disadvantages, which was observed in our study. We highly recommend the integration of ART in commune health centers to elevate the service accessibility.

The rate of taking the medicine was 65%, which was higher than the rate indicated by Gill[19] who reported 47.8% dosing time adherence rate. This might be due to the inconsistent time of medication length, as the medication adherence would decrease with the medication time increasing.

Wanchu et al.[20]have shown that the major reasons for non-adherence was financial constraints, forgetting to take the medication, drug toxicity, lack of access to drug, fear of getting immune to the benefit of the drug, and to avoid side effects. Not having money to travel to ART centre and forgetting to take the medication were the major reasons for non-adherence in the African setting[24] ART regimens have adverse side effects that varies from mild to severe[21], which is a cause of adherence. Our study revealed that patients who had side effects were more likely to be non-adherent and this has also been reported from another studies[22-23]

Globally, numerous studies have demonstrated that people living with HIV are vulnerable to psychological problems. This group faces a high risk of mental health problems, but the psychosocial needs of HIV-positive individuals remain largely unaddressed in India while other studies also mentioned the need to address the stigma and discrimination faced by HIV infected patients [24-25]

Future interventions to facilitate patients' adherence to antiretroviral therapy should pay close attention to changes in their emotional health over time.

It was noteworthy that those with high initial CD4 cell counts (>500 cell/mm^3) were more likely to achieve optimal adherence[26]. This study concluded that patients with other symptoms might receive multiple drug regimens, leading to a higher likelihood of ART non-adherence due to pill burdens and drug interactions[27].

A global study demonstrates that the most frequently reported reasons for non-adherence were related to drug toxicity, side effects, higher cost of treatment and frequent unavailability of medications[28]. The current study analysed stopping medicines after feeling better, cost of transport and side effects to be the major barriers for non-adherence.

Conclusion

The current study was conducted in Eluru city, Andhra Pradesh state to estimate adherent levels to ART. Majority of study participants were females & more than

half of study subjects were in age group of 40-60 years. Most of the study subjects belong to lower middle class/ class IV & ART adherence was 71.7%.

This study provided up-to-date evidence on the level of ART adherence and associated factors. Apart from this advantage, study has limitations as it was planned only in urban areas and unable to include all HIV patients on ART due to time constraints.

Recommendations

Adequate pre-ART counseling of patients and also their family members on drugs, their importance and consequences of inadequate compliance is needed. Major reasons for non-compliance being moving out of station, cost of transport and feeling better after medicines measures are to be taken to make drugs available to these patients at other ART centers on emergency basis. Better compliance is associated with better survival and effective outcome.

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