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Antiretroviral medication adherence among patients with HIV

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Abstract

Background: The introduction of antiretroviral therapy has caused a remarkable decrease in the occurrence of diseases and mortality among HIV positive patients, while this success has not been achieved among patients due to a low adherence to antiretroviral medicine.

Objectives: To assess antiretroviral medication adherence

Materials and Methods: A descriptive study was conducted to assess antiretroviral medication adherence among 35 HIV infected patients at the ART centre, Guwahati Medical College and Hospital, selected by convenient sampling technique. A standardized tool (Multi-Method Tool to Measure ART Adherence) was used to assess ART adherence. Data were analysed by using descriptive and inferential statistics.

Results: The study revealed that, 51.43% patients had high adherence, 28.57% had low adherence and remaining 20% were moderately adherent to ART. Patients ARV adherence was significantly associated with marital status, numbers of children and CD4 count ($p < 0.05$).

Conclusion: The study concluded that, majority of the patients had high adherence to ART and patient's adherence level was found significantly associated with socio demographic variables like marital status & numbers of children and clinical variable like CD4 count. Although there are awareness programmes initiated by the government on benefits of ART adherence, efforts must be made to tackle the barriers to ART adherence among patients.

Keywords: Antiretroviral medication, adherence, HIV infected patients, determinant factors

Introduction

The introduction of antiretroviral therapy has caused a remarkable decrease in the occurrence of diseases and mortality among HIV positive patients, while this success has not been achieved among patients due to a low adherence to antiretroviral medicine. Adherence to treatment means following the drug regimen daily and regular and accurate use of the medicine doses at the proper time and according to the physician's prescription. Irregular use of the medicine facilitates medical resistance and HIV becomes resistant against the prescribed drug regimen, or even similar drug regimen which the patient has not received yet, and in this way, the treatment fails. In a descriptive study, conducted by Rai S, Mahapatra B, Sircar S, Raj PY, Venkatesh S, Shaukat M, *et al.* 2023^[2] on adherence to antiretroviral therapy and its effect on survival of HIV-infected individuals in Jharkhand, India; it was found that the mortality rate was higher among patients who were non-adherent to ART than who were adherent. The risk of mortality was fourfold higher among individuals who were non-adherent to ART than who were adherent.

Methodology

A cross sectional descriptive study was conducted to assess antiretroviral medication adherence among patients with HIV in Gauhati Medical College & Hospital, Kamrup (M) Assam and to find association between patient's adherence to antiretroviral medication and their demographic & clinical variables. Formal permission was obtained from Assam State AIDS Control Society.

Population and sample

In the present study, sample comprised of HIV infected patients seeking treatment at the ART plus Centre, located at Gauhati Medical College & Hospital, Kamrup (M) Assam.

Inclusion Criteria

- Patients those who are registered in the ART plus Centre, located at Gauhati Medical College & Hospital, Kamrup (M) Assam.
- Patients of 18 years and above.
- Patients receiving ART medications for at least 3 months.

Exclusion Criteria

- Patients who are not willing to give consent to participate in the study.
- Patients who are severely ill with opportunistic infections.

Sampling technique

Convenience sampling technique was used for selection of samples for the study.

Sample size

35 HIV infected patients seeking treatment at the ART plus Centre, located at Guwahati Medical College & Hospital, Kamrup (M), and Assam were interviewed.

Tools for data collection

Section I: Socio-demographic and clinical performa.

Section II: A standardized Multi-Method Tool comprising of self-reporting, Visual analogue scale, pill identification test and pill count was used to Measure ART Adherence.

Method of data collection

Interview technique was used for the purpose of data collection. The investigator had given a self-introduction, explained the purpose of the study and ascertained the willingness of the subjects to participate in the study. Written consent was obtained from each participant assuring his/her confidentiality and privacy. It took 20-25 minutes for the investigator to collect data from a participant. Data related to patients' clinical information was collected from patient' medical record.

Data analysis: The data were analysed and interpreted in accordance with the objectives of the study by using descriptive and inferential statistical methods. Frequency and percentage distribution methods were used for the analysis of demographic variables in the study.

Table 1: Frequency and Percentage distribution of respondents according to socio demographic variables, N=35

S. No.	Variables	Frequency	Percentage (%)
1.	Age (in years)		
	18-24	07	20
	25-34	10	28.57
	35-44	08	22.86
	45-55	09	25.71
2.	55 and above	01	2.86
	Gender		
	Male	25	71.43
3.	Female	10	28.57
	Marital Status		
4.	Single	16	45.71
	Married	19	54.29
5.	Area of residence		
	Rural	16	45.71
	Urban	19	54.29
6.	Educational qualification		
	Illiterate	03	8.57
	Primary schooling	04	11.43
	Middle schooling	07	20
	High schooling	10	28.57
	Higher Secondary Schooling	03	8.57
7.	Graduate and above	08	22.86
	Occupation		
	None	09	25.71
	Laborer	11	31.43
	Business	07	20
8.	Cultivation	01	2.86
	Service	07	20
	Monthly Family Income in Rupees		
9.	≤6174	11	31.43
	6,175-18,496	22	62.86
	18,497-30,830	02	5.71
10.	Religion		
	Hindu	33	94.29
11.	Islam	02	5.71
	Habit of substance use		
	Yes	22	62.86
12.	No	13	37.14
	Numbers of children		
	Not applicable	16	45.71
13.	No children	02	5.71

	1	08	22.86
	2	05	14.29
	3 or more	04	11.43
12.	Distance travelled to the health facility		
	≤10 kms	09	25.71
	11-25 kms	13	37.14
	26-40 kms	02	5.71
	41-55 kms	03	8.57
	>55 kms	08	22.86

Table 2: Frequency and Percentage distribution of respondents according to clinical variables, N=35

S. No	Clinical Variables	Frequency	Percentage (%)
1.	Duration of seeking treatment		
	>3-6 months	01	2.86
	7-12 months	01	2.86
	13-18 months	06	17.14
	19-24 months	00	00
	>24 months	27	77.14
2.	Mode of transmission [Risk factor (s) for HIV]		
	Heterosexual	23	65.71
	MSM	05	14.29
	Injecting drug use (IDU)	01	2.86
	Blood transfusion	01	2.86
	Mother to child	03	8.57
	Unknown	02	5.71
3.	CD4 count (cells/μL)		
	≥500	19	54.29
	200-499	13	37.14
	<200	03	8.57
4.	WHO Clinical stage of HIV/AIDS		
	Stage I	23	65.71
	Stage II	10	28.57
	Stage III	01	2.86
	Stage IV	01	2.86
5.	Body Mass Index (kg/m ²)		
	Underweight (<18.5)	08	22.86
	Normal (18.5-24.5)	21	60
	Over weight (25-29.9)	06	17.14
6.	Haemoglobin %		
	Male (N=25)		
	Non-anaemic (≥13)	11	44
	Mild Anaemia (11-12.9)	07	28
	Moderate anaemia (08-10.9)	07	28
	Female (N=10)		
	Non-anaemic (≥12)	05	50
	Mild Anaemia (11-11.9)	04	40
Moderate anaemia (08-10.9)	01	10	
7.	Functional status of the patient-		
	W=Working	35	100
	A=Ambulatory	00	00
8.	A=Ambulatory	00	00
9.	B=Bed ridden	00	00
10.	Other associated diseases/opportunistic infection (if any) N=03		
	TB	02	
	Skin infection	01	

Table 3: Frequency and percentage distribution regarding utilization level adherence to ART, N=35

Levels of ARV Adherence	Frequency	Percentage (%)
High (≥95%)	18	51.43
Moderate (75-94%)	07	20
Low (<75%)	10	28.57

Table 4: Association between patient’s adherence to antiretroviral medication and their demographic variables, N=35

S. No	Demographic variables	Patient’s adherence			χ ² Value/ Fisher’s test	DF	P-Value
		Low	Moderate	High			
1	Marital status						
	Unmarried	3	7	4	8.690	2	0.010*
	Married	15	3	3	8.630		0.010*

2	Number of children	3	7	4	16.57	8	0.035*
	Not applicable	0	0	1			
	No children	6	3	1			
	1	5	0	1			
	2	4	0	0			
	3 or more				14.05		0.031*

* $p < 0.05$ level of Significance

Table 5: Association between patient's level of adherence to antiretroviral medication and their clinical variables, N=35

S. No	Clinical variables	Patient's adherence			χ^2 Value/ Fisher's test	DF	P-Value
		Low	Moderate	High			
1	CD4 count						
	≥ 500	14	4	1	9.443	4	0.041*
	200-499	3	5	5	9.924		0.020*
< 200	1	1	1				

* $p < 0.05$ level of Significance

Discussion

The study found that, 51.43% of HIV patients had high level of ART adherence, 20% had moderate adherence and 28.57% had low ART adherence. Also, patient's adherence level was found significantly associated with socio demographic variables like marital status & numbers of children and clinical variable like CD4 count.

The findings of this study is supported by a study done by Hansana V, *et al.* (2011) [3] on Adherence to Antiretroviral Therapy (ART) among People Living With HIV (PLHIV): A cross-sectional survey to measure in Lao PDR which revealed that 60% of HIV patients reported adherence of more than 95% and 40% reported non adherence to ART.

Similar findings were also found by Abadiga M, Hasen T, Mosisa G and Abdisa E (2019) [4], who conducted a study on Adherence to antiretroviral therapy and associated factors among Human immunodeficiency virus positive patients accessing treatment at Nekemte referral hospital, west Ethiopia revealed that out of the total of 305 study participants, 223 (73.1%) were adherent to their medication (95% CI = 68.2, 78.0) and 82 (26.9%) were not adherent to their medication.

Conclusion

The study concluded that, majority of the patients had high adherence to ART and patient's adherence level was found significantly associated with socio demographic variables like marital status & numbers of children and clinical variable like CD4 count. Although there are awareness programmes initiated by the government on benefits of ART adherence, efforts must be made to tackle the barriers to ART adherence among patients.

Conflict of Interest

The authors declare that they have no known competing financial and personal conflicts that could influence the reported work in this paper.

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