Research Paper Medical Science

Adherence to highly active anti-retroviral therapy in out-of-pocket paying setup at a tertiary care centre in central India

Dr. Harshal H. Sabane | Oman Medical College, Al Tareef, Sohar, Sultanate of Oman

ABSTRACT

An analytical cross sectional study conducted at a tertiary care centre to study the prevalence of adherence to HAART therapy.Adherence was assessed by the AACTG definition. Reasons for the patient's adherence were elicited and co-relates of adherent behaviour were studied.The proportion of study subjects who were adherent to the treatment was found to be 262 (85.06%). Interpersonal relation with the health care personnel was the foremost reason for the adherence. The adherence of the study subjects improved along with the age group and the association between age and adherence was statistically significant (X2=13.93, d.f. =3, p<0.001). The role of the health care provider is central to achieve high levels of adherence and should be reinforced.

KEYWORDS HIV, AIDS, Adherence, HAART, ART

Introduction:
Acquired Immunodeficiency Syndrome (hereafter AIDS) is one of the most destructive pandemics in recorded history.[1,2] HIV infection was first identified in India in 1986, when serological testing found that 10 of 102 female sex workers in Chennai were HIV positive.[3]India has demonstrated an overall reduction of 57% in the annual new HIV infections among adult population. It is estimated that around 1.5 lakh lives have been saved due to ART till 2011.[3]

The goal of therapy is to achieve an undetectable viral load after the administration of combination HAART therapy.[4,5] Psychologically speaking, the patient must now face lifelong treatment much like an individual with other chronic illness. [6] Adherence to HIV regimens is uniquely problematic because an incomplete course of treatment can be worse than no treatment.[7] According to research studies; a 95 percent adherence rate is associated with controlling HIV replication, which allows an optimal therapeutic response to the medications and prevention of resistant viral strains. [8,9,10] Poor adherence to antiretroviral regimens has serious consequences for HIV infected patients including failure to prevent viral replication, increased likelihood of developing viral resistance, development of complications and shortened survival.[11,12]

There is very limited information available from India on adherence to HAART and its correlates.[13]Two recent studies from India have documented non adherence in substantial people exceeding above 25%. [14]

Subjects and Methods:
The study is analytical cross sectional study which was carried out at a tertiary care referral hospital. Every week the days of data collection were changed so as to avoid the bias for day specific attendance in the hospital. Ethical clearance for the study was received from the institutions research ethics committee.

After taking informed consent, preliminary information was obtained followed by detailed history which included the Adult AIDS Clinical Trial Group adherence questionnaire (ACTGAQ). It is a self-reporting tool which is used to assessing self-reported adherence to HAART.[16]The socio-economic status of the participants was assessed by the Prasad's scale.

Since satisfactory clinical response requires extremely high adherence (≥95%), less than perfect adherence is often tantamount to unsatisfactory adherence. This is in line with the guidelines set by the National AIDS control program of India. In a scenario where the patient misses a single dose of medication in the last four day's eight doses, the patient's adherence will be less than 95%. [15]

Exclusion Criteria:
1. Patients on ART for less than 3 months.
2. Patients in moribund state or unable to comprehend.
3. Patients who refused to give consent.
4. Pediatric age group.

Criteria for adherence:
Adherence was tested by Adult AIDS Clinical Trials Group (AACTG) definition. [16]

Patients were asked the following questions:

- If they took all their doses in the past 4 days
- Took prescribed number of pills per dose
- Took doses on time (< 2 hours earlier or later than prescribed)
- Skipped medication over the past weekend

Results:
Table 1 Distribution of study subjects according to age and sex.

(n = 308)

Age Group in Years	Study Subjects		Total (%)
	Male (%)	Female (%)	
21 – 30	104(33.76)	12(3.89)	116(37.66)
31 – 40	105(34.09)	16(5.19)	121(39.29)
41 – 50	49(15.90)	18(5.85)	67(21.76)
51 – 60	4(1.29)	0(00)	4(1.29)
Total	262(85.06)	46(14.94)	308(100)

A total of 308 study subjects participated in the study. 262 (85.06%) of the study subjects were males and 46 (14.94%) study subjects were females. Most of study subjects belonged to social class III 100 (32.47%) followed by social class IV 94 (30.52%), social class II 75 (24.36%), social class I 31 (10.36%) and social class V 8 (2.59%).

Table 2 Distribution of study subjects according to adherence and sex.

(n = 308)

Adherent	Study Subjects		Total
	Male	Female	
Yes	179(84.04)	34(15.96)	213(100)
No	83(87.38)	12(12.62)	95(100)
Total	262(85.06)	46(14.94)	308(100)

262 (85.06%) of the patients were found to be adherent in the study. Amongst the non-adherent group 83 (87.38%) were males and 12 (12.62%) were females.

Table 3 Co-relates of adherence to HAART in study subjects.*

Reasons	Total n = 213	Percentage
Interpersonal Relations with health care personnel	154	72.30
Presence of disease symptoms	42	19.71
Social Support	36	16.90
Knowledge of Outcome	34	15.96
Trust in medication	22	10.32
Others	19	8.92

*: Multiple responses were allowed

Among the subjects who were adherent, 154 (72.30%) of study subjects had a good rapport with health care personnel and stated "Interpersonal Relations with health care personnel" as most important reason for adherence to the therapy. "Presence of disease symptoms" was reported as a correlate of adherence by 42 (19.71%), "Social support" by 36 (16.90%) and "knowledge of outcome" was reported by 34 (15.96%).

Table 4 Association of age with adherence to HAART.
(n = 308)

Age Group(Years)	Adherence		Total (%)
	Yes (%)	No (%)	
21-30	53 (50)	53 (50)	106 (100)
31-40	102 (82.26)	22 (17.74)	124 (100)
41-50	52 (74.28)	18 (25.72)	70 (100)
51-60	6 (75)	2 (25)	8 (100)
Total	213 (69.16)	95 (30.84)	308 (100)

$X^2$for linear trend =13.93, d.f. =3, p<0.001

In the age group of 21-30 years the adherence was least. Adherence generally increases with increasing age, and this relation was found to be statistically significant.

Discussion:

According to NFHS 3 among the HIV positive population the prevalence of infection amongst 15 – 49 years of age is 88.7%.[4] The adherence of the study subjects improved along with the age group and the association between age and adherence was statistically significant (p <0.001). Moatti, J.P. et al [10], Howard, A.A. et al [17] and Gordillo, V. et al [18] also reported that adherence was associated with older age. Early optimism concerning the benefits of these medications has been dampened by evidence suggesting that even modest non-adherence can greatly diminish the benefits of treatment and lead to serious personal and public health consequences.[10,12,11] Patients self-report has been regarded as a fair indicator of the actual level of adherence, virological failure and CD4 counts.[6,14] "Interpersonal relationship with the health care provider" emerged as the most important correlate of adherence which was mentioned by 154 (72.30%). A study by Afolabi, B.A. in a Nigerian clinic demonstrates that patients with good social support as judged by the Perceives Social Support Family Scale and Family APGAR scales were much more likely to be adherent then those who do not feel likewise. [21]

The study highlights the proportion of patients who are not completely adherence to HAART. The treating physician assumes an important role. The study has its limitations as it is a hospital based study and hence will not be adequately able to capture the picture in the community setting. The patient is paying out-of-pocket for his treatment hence the proportion and reasons for being adherent will be different from those found in a government based setting.

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