Section: Pharmacology

Original Research Article

A STUDY ON MEDICATION ADHERENCE TO ANTIRETROVIRAL THERAPY AND INFLUENCE OF CORRELATED FACTORS AMONG PEOPLE LIVING WITH HIV/AIDS

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Abstract

Background: Andhra Pradesh has the highest prevalence of HIV among southern states of India. Medication adherence to Antiretroviral therapy (ART) plays very crucial role as > 95% adherence is needed to decrease the viral load and to control the disease. Many obstacles were observed in monitoring of all the domains involved in long-term maintainance of Medication adherence to ART and it is the current challenge in many developing countries. The aim and objective is to assess the adherence to Antiretroviral therapy among people living with HIV attending ART centre, Government Medical college, Machilipatnam. To know the factors associated with the adherence to antiretroviral therapy among people living with HIV attending ART centre, Government Medical college, Machilipatnam. **Materials and Methods:** Adherence index was calculated using the formula. $Adherence\ index = \frac{\text{Total number of drugs taken}}{\text{Total number of drugs prescribed}} \times 100$. A pre designed proforma was created to assess the factors associated with the adherence to ART. Data collected was analysed through SPSS software using chi square test. P value < 0.05 will be considered as significant. **Result:** Mean adherence index of the sample was 72.3. High adherence (>95%) was shown by 64.3% (n = 257) of the sample and low adherence was shown by 35.7% (n =143) of the sample. Significant association was observed between duration of using ART, WHO staging, Presence of comorbidities, distance from ART centre, Disease induced hopelessness, taking care of family or daily busy routine causing forgetfulness, feeling better with the medication and medication adherence to ART. **Conclusion:** Factors which are associated with low adherence like distance from ART centre, disease induced hopelessness, comorbidities, forgetfulness drug intake are to be considered and proper methods to improve medication adherence should be initiated.

INTRODUCTION

National AIDS control organization (NACO) reports that Andhra Pradesh has the highest prevalence of HIV among southern states of India. Maharashtra has the highest number of people living with HIV approximately 3.96 lakhs followed by Andhra Pradesh which is around 3.14 lakhs as per the estimates of NACO 2019 reports.[1] Joint United nations program on HIV/AIDS announced a progressive target aiming to decrease morbidity and mortality associated with HIV/AIDS in December 2020, which includes 95% of people living with HIV should know their HIV status, 95% of all people diagnosed with HIV infection should get proper antiretroviral therapy (ART), and 95% of people receiving proper antiretroviral therapy should have significant viral suppression by the year 2025.[2] In the process of achieving this goal medication adherence to ART plays very crucial role as > 95% adherence is needed to decrease the viral load and to control the disease. In other chronic diseases like diabetes mellitus medium adherence is sufficient to get adequate control the disease.[3] Definition of Medication adherence is the extent to which a patient's behaviour corresponds with the medication that was prescribed and their dosing regimen, as well as time of intake and interval of medication intake.[4]

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Medication adherence to ART is multidimensional that includes patient's domain, Disease domain, health care system domain, social domain and economical domain.[5] Long term maintenance of medication adherence to ART requires continuous monitoring in all these domains. Many obstacles were observed in monitoring of all these domains and it is the current challenge in many developing countries.[6,7] So the current study is undertaken to decrease the morbidity and mortality associated with HIV/AIDS by knowing medication adherence rate to ART and factors associated with it.

Aim & Objectives

To assess the adherence to Antiretroviral therapy among people living with HIV attending ART centre, S.V.P. Government Medical college, Machilipatnam

To know the factors associated with the adherence to antiretroviral therapy among people living with HIV attending ART centre, S.V.P. Government Medical college, Machilipatnam.

MATERIALS AND METHODS

This is a cross sectional analytical study done in people living with HIV attending ART centre, S.V.P. Government Medical college, Machilipatnam. Study duration was 3 moths. Sample size was calculated using the study done by Naga Raju et al[8] with the title Factors affecting adherence to antiretroviral therapy in Andhra Pradesh, India where the prevalence of adherence of >95% was 50.1%. Relative precision of 10% was taken. Calculated sample size was 398.3. So 400 patients were included the study. Sample was selected by simple random sampling method. Institutional Ethics Committee clearance was taken before starting the study.

Patients of age group 18 to 70 years and those who are willing to participate in study were included. Patients using ART for > 1 year duration were included Patients who are not willing to participate, patients with extreme illness and patient using ART for <1 year duration were excluded. Written consent was taken from each patient before collecting data.

Adherence index was calculated using the formula:[9]

$$Adherence\ index = \frac{\text{Total number of drugs taken}}{\text{Total number of drugs prescribed}} \times 100$$

A pre designed proforma was created to assess the factor associated with the adherence to ART. Data collected was analysed using SPSS software using chi square test. P value < 0.05 is considered as significant.

RESULTS

Mean age of the sample was 42 .4 years. Out of 400 patients, 274 were male and 126 were female. ART regimens prescribed to the patients were Tenofovir 300mg+ Lamivudine 300mg+ Dolutegravir 50mg, Zidovudine 300mg + Lamivudine 150mg, Abacavir 60mg + Lamivudine 30mg, Zidovudine 300mg + Lamivudine 150mg in comination with Dolutegravir 50mg. Mean adherence index of the sample was 72.3. High adherence (>95%) was shown by 64.3% (n = 257) of the sample and low adherence was shown by 35.7% (n =143) of the sample.

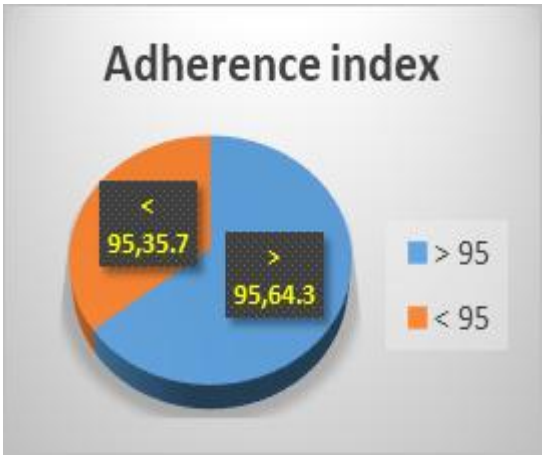

Figure 1: Medication Adherence Index of ART

Table 1: Factors associated with medication adherence to ART.

Factors	High Adherence n=257	Low adherence n=143	P Value
Gender			
Male	189 (73.5%)	85 (59.5%)	0.036
Female	68 (26.4%)	58 (40.5%)	
Education			
Literate	82 (31.9%)	29 (20.2%)	0.012
Illiterate	175 (68%)	114 (79.8%)	
Duration of using ART			
1-2 years	72 (28%)	17 (11.8%)	0.0001
2-3 years	143 (55.6%)	49 (34.2%)	
>3 years	42 (16.3%)	77 (54%)	
WHO staging			
Stage 1	13 (5%)	15 (10.4%)	0.0009
Stage 2	153 (59.5%)	83 (58%)	
Stage 3	88 (34.2%)	43 (30.6%)	
Stage 4	3 (1.1%)	2 (1%)	
Comorbidities			
Present	92 (35.7%)	91 (63.6%)	0.0001
Absent	165 (64.2%)	52 (36.4%)	
Distance from ART Centre			

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<30km	61 (23.7%)	51 (35.6%)	0.010
>30km	196 (76.2%)	92 (64.4%)	
Pill burden			
Yes	45	33	1.78
No	212	110	
Disease induced hopelessness			
Present	47 (18.2%)	99 (69.2%)	0.0001
Absent	210 (81.7%)	44 (30.8%)	
Side effects of the treatment			
Present	239 (92.9%)	137 (95.8%)	0.25
Absent	18 (7.1%)	6 (4.2%)	
Taking care of the family / daily busy routine causing forgetfulness			
Yes	95 (36.9%)	87 (60.8%)	0.000001
No	162 (63.1%)	56 (39.2%)	
Oppurtunistic infections			
Present	151 (58.7%)	98 (68.5%)	0.053
Absent	106 (41.3%)	45 (31.5%)	
Attending follow ups regularly			
Yes	198 (77.0%)	112 (78.4%)	0.76
No	59 (33%)	31 (21.6%)	
Feeling better with Medication			
Yes	181(70.4%)	51 (35.6%)	0.00001
No	76 (29.6%)	92 (64.4%)	

Among males 68.9% showed high adherence and among females 53.9% showed high adherence with significant p value of 0.036. Among literate people 73.8% showed high adherence and among illiterates 60.5% showed high adherence. Significant association was seen between literacy of the patient and medication adherence to ART with a p value of 0.012. 80. 8%, 74.4% & 35.2% of the patients using ART since 1 to 2 years, 2- 3 years & > 3 years showed high adherence respectively. Significant association was observed between duration of using ART, WHO staging, Presence of comorbidities, distance from ART centre, Disease induced hopelessness, taking care of family or daily busy routine causing forgetfulness, feeling better with the medication and medication adherence to ART. Most common side effects observed with ART were gastro intestinal side effects like gastritis, nausea, vomiting & diarrhea, generalized weakness, headache which were subsided over the time. Inspite of these side effects 63.5% of the patients with side effects showed high adherence. Among all the 400 patients only 19.5% were experiencing pill burden. 77.5% of the patients are attending the follow up regularly. No significant association was observed between medication adherence to ART and side effects of ART, pill burden, attending to regular follow ups. Most common opportunistic infections observed were oropharyngeal candidiasis, pneumonia, meningitis, diarrhea, and herpes simplex ulcers.

DISCUSSION

High adherence to ART was noted by 64.3% of the patients with mean adherence index of 72.3 as per the results of this study. These findings are similar to the study done by Basavaraju Achappa et al,[9] in Mangalore, Karnataka where 63.7% patients showed high adherence and study done by Bhejabhe et al,[10] where 63.4% patients showed high adherence. High adherence was observed in more percentage of the patients when compared to the study done by Raju et al,[8] in Andhra Prdesh where only 50.1% showed high adherence. A study done by Morowatisharifabad,[11] in Iran showed 74.5% of the sample has high adherence to ART., 85.5% of the patients were categorized as having good adherence in the study done by Yang yu et al,[12] in china. Percentage of people showing high adherence was increased in districts of Andhra Pradesh over a period of time but it is still less when compared to other countries.

Only 53.9% of the female showed high adherence where as 68.9% of the males showed high adherence. This was supported by the study done by Jungmee kim et al,[13] which says that female gender is a risk factor for low adherence. Reason for the low adherence among female might be social stigma and lack of self time. A study done by Atika Moosa et al,[14] also indicates that time since ART initiation, female gender and primary breadwinner status were significantly associated with ≥95% adherence to ART.

In this study it was observed that low adherence was shown by the patients having comorbidities. The association between Presence of comorbidities and medication adherence to ART was highly significant with a p value of 0.00001. Comorbidities associated poly pharmacy might be the reason for low adherence. These findings are supported by study done by Simona a Iacob et al.[15]

Present study indicates that the patients who need to travel for more than 30 km to reach nearby ART center were showing low adherence. Lack of proper knowledge about the benefits of having regular ART is the contributing factor for low adherence and these findings are similar to the study done by Mavis Kessewa Addo et al.[16]

According to the study done by Anant Gokarn et al,[17] difficulty in remembering the treatment is also a determinant of low adherence. In this study also significant association was observed between taking

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care of the family or daily busy routine and medication adherence.

Syed Imran Ahmed et al,[18] Disease induced hopelessness is leading the patient to neglect the medication resulting in low adherence which is similarly found in the present study too.

Inspite of the side effects of ART regimen high adherence was noted in 63.5% of the patients who experienced side effects. This is contrary to the studies of Mhaskar R et al,[19] & Ayalu A Reda et al,[6] where adverse effects of ART was shown as most prevalent reason for low adherence.

In this study pill burden was shown by very less patients (19.5%) as fixed drug combinations have replaced the previous multiple pill regimens. Similar findings were demonstrated by Sutton et al.[20] Previously poor adherence to ART was detected because of the complexity of the ART regimen in the study of Kenneth et al.[21] But as per the study of Jimmy ba villiera et al,[22] Pill burden on its own did not affect medication adherence to ART.

Regularly attending follow up did not show significant association with medication adherence in the current study. Attending the hospital for medication refill was significantly associated with high medication adherence as per the study conducted by Setor Kunutsor et al.[23]

Common opportunistic infections reported in this study are similar to the study done by Hanna DB et al.[24]

Limitations

This study was done in the patients of a single particular area. Multicentric studies are needed to generalize the results.

Only few factors associated with the medication adherence to ART are studied. Many other factors are needed to be addressed.

CONCLUSION

Non adherence or poor adherence to ART leads to less viral suppression, disease progression, multiple oppurtunistic infections which will compromise the quality of life of the patient. Only 64.3% patents were showing high adherence inspite of So much effort from health care system. Factors which are associated with low adherence like distance from ART centre, disease induced hopelessness, comorbidities, forgetfulness drug intake are to be considered and proper methods to improve medication adherence should be initiated.

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