

The study to evaluate the effect of highly active antiretroviral therapy (HAART) in relation to CD4 count and psychiatric morbidity

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Abstract

Adherence is a critical component for therapeutic success in HIV infection. The advent of anti-retro viral medications and in particular the Highly Active Anti-Retro Viral Treatment (HAART) has added years to the lives of PLWHA. Adherence to antiretroviral therapy (ART) has been shown to be a major determinant of biological outcome measures in HIV, including HIV ribonucleic acid (RNA) level, CD4 lymphocyte count, and genotypic resistance. Though these treatment options have prolonged their lives it is important to understand if the psychological status of the individual as also their quality of life improves significantly post treatment. A prospective study was conducted in Navodaya Medical College, Raichur. All the Patients who attended HIV/AIDS Anti-Retroviral Treatment Centre (ART) of the KIMS Hospital and Research Centre between February 2014 to January 2015. were included in the study. A total of 64 patients were registered during the study period after obtaining the consent from the participants and ethical clearance from the concerned institution. The quality of life and CD4 count and there psychiatric morbidity gradually increased with the introduction of HARRT.

Key Word: AIDS, HARRT, PLWHA, CD4.

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INTRODUCTION

Since 1981 when the HIV pandemic was identified, most efforts have been mainly directed at prevention and treatment of the disease. The world over, there are a large number of individuals living with HIV/AIDS also referred to as People Living With HIV/AIDS (PLWHA). With the diagnosis of this illness the patient has to face the stigma associated with it which causes a significant burden on the patient. Psychological wellbeing also

depends upon the coping strategies that he employs. The complex interaction of stigma, burden of the disease, and the coping strategies used by the patient, influence the development of psychiatric morbidity in them. These in turn influence the quality of life of the affected individual and those associated with him.¹ Adherence is a critical component for therapeutic success in HIV infection. The advent of anti-retro viral medications and in particular the Highly Active Anti-Retro Viral Treatment (HAART) has added years to the lives of PLWHA. Adherence to antiretroviral therapy (ART) has been shown to be a major determinant of biological outcome measures in HIV, including HIV ribonucleic acid (RNA) level, CD4 lymphocyte count, and genotypic resistance. Though these treatment options have prolonged their lives it is important to understand if the psychological status of the individual as also their quality of life improves significantly post treatment. In this context the present study was carried out in a tertiary care referral centre, to see the effect of HAART on the individual's QOL, CD4 count and the psychiatric morbidity.²

MATERIALS AND METHODS

A prospective study was conducted in Navodaya Medical College, Raichur. All the Patients who attended HIV/AIDS Anti-Retroviral Treatment Centre (ART) of the KIMS Hospital and Research Centre between February 2014 to January 2015, were included in the study. A total of 64 patients were registered during the study period after obtaining the consent from the

participants and ethical clearance from the concerned institution. Individuals who are aged between 18-60 years and are HIV positive (or AIDS), who are to be initiated on ART and are in clear sensorium were included in the study. Initial assessment of the patient was done before initiation of the HAART and reevaluation of the patients was again done after 3 months from the date of initiation of HAART.

RESULTS

Table 1: Comparison of pre and post HAART CD4 counts

	Mean	N	Std. Deviation	Difference	t	df	P value
Pre CD4	214.61	63	101.536				
Post CD4	296.54	57	104.423	-81.934	-10.740	60	.000

The study shows that the mean CD4 count in patients prior to initiating HAART is 214.61 and in post HAART about 296.54. There is a considerable improvement in CD4 count after starting HAART and is statistically significant.

Table 2: Comparison of psychiatric morbidity with QOL and CD4count

SCID		Dysthymia	MDD	BPAD	Adjustment disorder	Dysthymia + ADS	ADS	Total	F	P value
Pre	N	12	14	1	10	1	1	39		
CD4	Mean ± SD	260.25 ± 82.33	198.43 ± 122.68	167.00	208.10 ± 124.27	213.00	256.00	220.97 ± 107.69	0.508	0.768
Pre	N	12	13	1	10	1	1	38		
QOL	Mean ± SD	44.79 ± 10.12	54.48 ± 10.09	48.50	51.38 ± 12.47	50.00	39.25	49.93 ± 10.99	1.234	0.316
Post	N	12	12	1	-	1	1	27		
CD4	Mean ± SD	324.58 ± 74.24	270.42 ± 116.07	430.00	-	354.00	300.00	304.59 ± 97.23	0.974	0.441
Post	N	9	12	0	-	1	1	23		
QOL	Mean ± SD	54.39 ± 6.85	50.83 ± 8.87	-	-	50.00	51.50	52.22 ± 7.72	0.361	0.782

It is seen that as the mean CD4 count increases, the mean QOL also increases. Along with increase in both mean QOL and CD4 scores there is a decrease in the suffering i.e. in psychiatric morbidity.

Table 3: Comparison of psychiatric morbidity in pre and post HAART

Pre HAART psychiatric morbidity	Post HAART psychiatric morbidity							Total
	NIL	Dysthymia	MDD	BPAD	Dysthymia + ADS	ADS	Death	
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	
NIL	24 (96.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (4.0)	25 (100.0)
Dysthymia	0 (0.0)	12 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	12 (100.0)
MDD	0 (0.0)	0 (0.0)	12 (85.7)	0 (0.0)	0 (0.0)	0 (0.0)	2 (14.3)	14 (100.0)
BPAD	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)
Adjustment disorder	10 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	10 (100.0)
Dysthymia + ADS	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)
ADS	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)
Total	34 (53.1)	12 (18.8)	12 (18.8)	1 (1.6)	1 (1.6)	1 (1.6)	3 (4.7)	64 (100.0)

It is seen that there is a reduction in psychiatric morbidity following regular use of HAART, a statistically significant finding ($p < 0.01$).

DISCUSSION

CD4 counts are used as a measure to initiate HAART in HIV/AIDS individuals, and to monitor their response to medication. With the use of ART it is seen that there is a change in physical and biological parameters as CD4 counts improve. Both physical and psychological

morbidity has been associated with lower CD4 counts as also a high virological load. The prevalence of psychiatric morbidity in individuals with HIV/AIDS has been found to be high worldwide. It has been found that 50% and 33% of patients had a past-year and past-month diagnosis in two internationally conducted studies. (Bradley N.

Gaynes, Brian Wells Pence, Joseph J. Eron Jr, and William C. Miller).³ The scenario is not much different in India as well, with, an ICMR study that looked at 70 HIV positive patients and found psychiatric morbidity in 49% of them.⁴ The prevalence of psychiatric morbidity in our study appears to be higher (61%) than in the other studies.^{5,6,7} Majority of those diagnosed to have a psychiatric illness (56.4%) had low CD4 counts (<250). This concurs with studies that have reported similar findings. With the use of HAART it was found that there was a mean increase in CD4 counts from (214.61) to (296.54), which is more often the natural response to medication. With the increase in CD4 counts, the quality of life improved in those diagnosed to have dysthymia, but not in those diagnosed to have a major depressive disorder. Given the nature of a dysthymic illness, it can be explained that as the overall wellbeing improved, the quality of life also improved, as certain extraneous factors that may have contributed to developing the illness were removed. In those with a depressive disorder, it is possible that as the follow up period of the study was three months, the episode did not undergo remission explaining the lack of a change in the quality of life for the better. This could imply that though all individuals diagnosed to have a psychiatric disorder require psychological input in order to improve their quality of life, those with a depressive disorder probably require a greater intervention, given the biological nature of the illness.

CONCLUSION

PRE HAART

Majority of the study population (64%) had CD4 count of less than 250. Only 3 out of 64 patients had CD4 more than 350. More than half of the individuals who received a psychiatric diagnosis had low CD4 counts (56.4%). 61% had a diagnosable psychiatric illness. Among the psychiatrically ill, 36% were diagnosed to have a Major

Depressive Disorder, 31% with Dysthymia, 25% with Adjustment Disorder. In all, 92% of those with a diagnosable psychiatric illness belonged to the depressive disorder spectrum. Majority of the sample population had a moderate quality of life, scores reading 30 – 60 (80%). Majority (76.6) had a total coping check list score of 31– 60. Mean coping scores prior to onset of medication was 30.7.

POST HAART

Statistically significant increase in CD4 counts: mean 214.61 to 296.54. There is a statistically significant increase in the quality of life of the patients as CD4 increases: mean 48 to 56. There was a significant reduction in the prevalence of diagnosable psychiatric illness, post treatment, from 61% to 47%.

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