



STUDY OF CHANGING CD4 CELL COUNT PATTERN IN PREGNANT LADIES ATTENDING ART CENTRE IN AJMER REGION OF RAJASTHAN

Dr. Parul Chaturvedi

Resident III year Department of Microbiology, JLN Medical College, Ajmer.

Dr. Jyotsna Chandwani*

Senior Demonstrator, Department of Microbiology, JLN Medical College, Ajmer.
*Corresponding Author

Dr. Geeta Parihar

Professor & HOD Department of Microbiology, JLN Medical College, Ajmer.

Dr.C.K Meena

Professor & Nodal officer ART, Department of Medicine, JLN Medical college & Hospital, Ajmer

ABSTRACT **BACKGROUND-** HIV/AIDS is one of most dreadful diseases affecting mankind worldwide India experienced 21,16581 HIV infections & approx. 67.6 thousand deaths in year 2015. As per NACO, out of these 35,255 were pregnant women (8.6% from Rajasthan). As known so far HIV deteriorates immune system & declines CD4 cell count. In pregnancy immunity is physiologically compromised further affecting CD4 cell count. Studies show CD4 is the strongest predictor of disease progression & survival, besides being cheaper & affordable. There are very few studies done on changing CD4 cell count pattern of HIV positive pregnant women. Keeping this scenario in mind, this study was carried out.

AIMS & OBJECTIVES- To study CD4 cell count pattern before & during course of treatment in HIV positive pregnant females.

METHODOLOGY- A retrospective observational study was done on HIV positive pregnant females attending ART Centre, JLN Medical College & Hospital, Ajmer from 1 Jan 2015 to 30 May 2017. Absolute CD4 cell count was done using BDFACS Cell Counter based on flow cytometry, done at time of registration & after commencement of treatment.

RESULTS & CONCLUSION- Out of 1649 HIV positive patients reported, 60.7% were males & 39.2% females. Among females, 16.5% were pregnant women. Average CD4 cell count reported Pre-ART was 406 cell/mm³ & Post-ART 548 cells/mm³. Out of total 107 HIV positive pregnant females, 66.4% reported an improvement in CD4 cell count with ART. Thus, understanding the variation in CD4 count in a vulnerable group like pregnant women will provide useful insight on elimination of AIDS related deaths & improving HIV awareness towards spouse testing by launching various NGO programmes.

KEYWORDS : HIV, CD4, Pregnant females.

INTRODUCTION: Human Immunodeficiency Virus (HIV) infection/Acquired Immunodeficiency Syndrome (AIDS) is the most dreadful disease & a major global health issue affecting mankind. There are 36.9 million people globally living with HIV in 2017, out of which 1.8 million people are newly infected. Every week, around 7000 young women aged 15–24 years become infected with HIV. With the beginning of epidemic 77.3 million people have become infected with HIV & 35.4 million people have died from AIDS-related illnesses. (1) In India, according to NACO Technical Estimate Report (2015), out of 29 million annual pregnancies, 35,255 are HIV positive pregnant women. CD4 T-lymphocytes coordinate with the immune system in response to pathogens. In pregnancy due to several factors immunity is physiologically compromised, which affects CD4 count levels. In HIV-infected individuals, the CD4+ cell count provides a picture of immune system health, with higher CD4 counts typically signifying healthier immune systems. Pregnancy with HIV infection is associated with altered immunity, and may worsen the immunosuppression. (2) The change in the hormonal environment of pregnancy contributes to local suppression of cell mediated immunity at the maternal foetal interface (3).

Maternal HIV infection in women who have not received antiretroviral therapy has been associated with adverse pregnancy outcomes such as preterm birth, low birth weight (LBW), small for gestational age (SGA) and stillbirth, especially in SSA (4)

CD₄ cell count is one of most important investigations in clinical evaluation of HIV infected patient. It helps evaluate stage of disease, initiation of anti-retroviral therapy prophylaxis for opportunistic infections, treatment failure. It is also of prognostic significance & used as marker for assessing progression from HIV infection to AIDS.

Studies show CD₄ count is the strongest predictor of disease progression & survival there are very few studies done on changing CD4 cell count pattern in HIV positive pregnant women. Keeping this scenario in mind, this study was carried out. The aim of the study was to find the CD₄ cell count pattern before & during course of treatment in HIV positive pregnant females.

MATERIALS & METHODS: Study Design:- A retrospective observational study was done on HIV positive pregnant females attending ART Centre, JLN Medical College & Hospital, Ajmer from 1 January 2015 to 30 May 2017 over a period of 29 months.

Sample size:- A total of 107 HIV Positive pregnant females of the reproductive age group (20-45 yrs) participated in the study.

Inclusion criteria:- All pregnant women who tested HIV positive were included. **Exclusion criteria:-** All non pregnant HIV positive women & all HIV negative pregnant women were excluded.

METHOD:- CD₄ cell count was done using BDFACS Count system which is based on flow cytometry technique.

RESULTS: Out of 1649 HIV positive patients reported, males were 1001 (60.7%), 2 (0.1%) females were 646 (39.2%), out of which 107 (16.5%) Pregnant females.

Table no 1 : Age & occupation distribution of HIV Positive Pregnant Women

Age Distribution	No. of HIV Positive Pregnant Women under study	% of HIV Positive Pregnant Women under study
20-25	65	60.7%
26-30	25	23.4%
31-35	10	9.4%
36-40	04	3.7%
41-45	03	2.8%
Occupation	No. of HIV Positive Pregnant Women Under Study	% of HIV Positive Pregnant Women Under Study
Unskilled/housewife	73	68.2%
Semiskilled	28	26.2%
Skilled	06	5.6%

Out of the 107 HIV pregnant females, number was maximum in age group 20-25 years which was 65 (60.7%) and amongst them 73 (68.2%)

were housewife ,shown in table number 1.

Baseline CD4+ T cell count was calculated at the time of patient reporting to the ART centre.Further CD4+T cell counts were done Post ART & an average value was compared according to the gestational ages of the patients.Average CD4 cell count reported Pre-ART was 406 cell/mm³& Post-ART 548 cells/mm³.Maximum average CD4+T cell was found in the gestation age between 26 -38 weeks which was 486 & 634 Pre & Post respectively. Shown in figure no. 1.

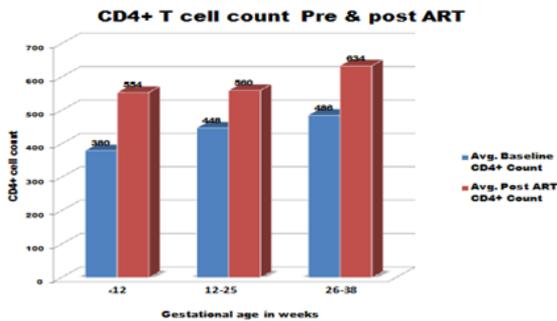


Figure number 1:CD4+T cell count Pre & Post ART

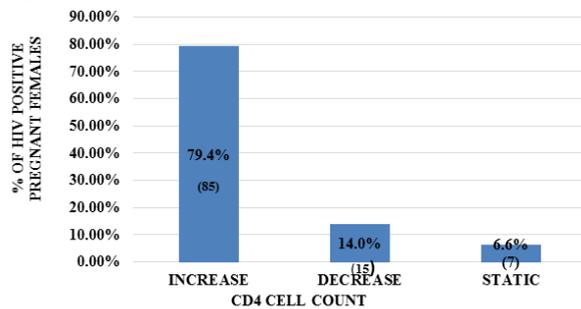


Figure number 2:effect of CD4+T cell PostART

Out of 107 HIV positive Pregnant women the CD4+T cell increased in 85(79.4%) ,decreased in 15(14.0%) and in 7(6.6%) remained static;shown in figure 2.

DISCUSSION: In the present study the highest number of HIV positive pregnant female cases were found in the age group 20-25 years and lowest among the age group 41-45 years which was 65 (60.7%)&3(2.8%) respectively .

In the study done by Silas A Ufelle et al⁵ in Nigeria the maximum cases recorded were in group aged 26 to 30 years&21-25 years which was 21(42%)&18(36%)resp. Lowest was seen in the group aged 31 years above which was 11(22%), which is almost similar to the findings of our study.In our study the lower age group number was slightly high due to the trend fact of early marriages in the region.(5)

In our study the occupations of the 107 HIV positive pregnant females fell into three broad groups:Unskilled workers 73(68.2%), Semi-skilled28 (26.2%) &6(5.6%) were the skilled workers.Whereas in the study done by VN Addo et al⁶ in 2005 ,out of 334 respondent females ,Skilled workers were 34 (10.2%), Semi-skilled 259 (77.5%), and Unskilled 41 (12.3%) .The slight variation in the findings can be attributed to the overall awareness knowledge,attitude and practice of the local population towards HIV & AIDS prevention.(6)

In the study conducted by us the mean baseline CD4+ cell count of the HIV positive pregnant females was recorded as 406 /μL .Similar findings were reported byAkinsegun A Akinbami et al² in year 2015 as 413.87±212.09 cells/μL& by Myer et al⁷ in 2013 as 402 cells/μL. Whereas a lower value, of 323.7±170.7 cells/μL was obtained in Nigeria by Ekwempu et al⁸.(2,7,8)

In the present study ,79.4% HIV positive pregnant females, reported an improvement in CD4 cell count Post- ART, 14.01% recorded a decrease in overall CD4+T cell count & 6.6% females did not show any change in their CD4⁺ T cell count.While in the study done by N DravidMrudula et al⁹ in year 2012, 77.1% respondents showed an improvement in CD4 cell count Post-ART,1.75% showed no change

while 21.05% recorded a decrease in CD4 cell count which is almost similar to findings of our study.(9)The Overall improvement in CD4 cell count of HIV positive pregnant females Post-ART points out that early & timely beginning of antiretroviral therapy triggers an improvement in the no. of CD4 cells present in the blood.

CONCLUSION: In the present study there was a wide variation in CD4 cell count of HIV positive pregnant females noticed at various gestational ages, which can aid a physician in monitoring the therapy so repeated CD4 cell count at every trimester should be done.

Besides, it was also noticed that the unskilled HIV positive pregnant females constituted a larger group & there were increased number of drop outs, which triggers a need for improvement in KAP of pregnant women by educational programs & awareness campaigns towards early diagnosis, testing & monitoring.

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