Section: Miscellaneous

Original Research Article

DISCORDANT HIV STATUS OF SPOUSES IS NOT A CHALLENGE FOR ART ADHERENCE FOR HIV POSITIVE PW: STUDY FROM EASTERN INDIA

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Received : 15/03/2023
Received in revised form : 11/04/2023
Accepted : 27/04/2023

Keywords:
EMTCT, PPTCT, Sero-discordant, ART Adherence, ANC Prevalence, ICTC, ARTC, Sero Discordant, Concordant, ART Adherence, PLHIV, EMTCT.

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DOI: 10.47009/jamp.2023.5.3.71

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (3); 323-328

Abstract

Background: Adherence of ART drugs lifelong by the HIV positive pregnant women is not only essential for the own health of the mother but also helps in Elimination of mother to child transmission (EMTCT) of HIV infection as per the WHO guideline of prevention of parent to child transmission (PPTCT) 1. The ART adherence of the mother not only depends on good counselling, socio economic, demographic and educational back ground of the mother but also the HIV status of her spouse. The purpose of the study is to assess the challenges for ART adherence of PW PLHIV (People Living with HIV) with various socio-economic statuses, correlating the sero-discordant spouses and to suggest need based solution keeping in view the findings of the study. **Materials and Methods:** All the married couple of positive PW, Spouses tested for HIV. Alive and initiated on ART. Widow, Separated, unmarried, and the spouses of the Positive pregnant women those who have not undergone HIV tests, the PLHIV died,opted out, transferred out after ART initiation were excluded in the study. In the present analysis, information on different background characteristics of HIV +ve pregnant woman & her spouse, adherence to ART, route of transmission, etc. were collected from a secondary data source i.e. the PALS line list Software of NACO. With matching criteria, total 338 numbers of samples were analysed and found that, about 80% of pregnant women are in 20 to 30 years of age. **Result:** Data also reveals that, more than 9% pregnancies have occurred in the adolescent age (19 years and below) which is a risk factor for the mother. Nearly 43% women have completed primary, 32% completed secondary and 14% completed higher secondary education. Still about 12% women were found illiterate and never gone to a school. A majority (93%) of the woman are house wife and 89% have experienced 2 or less pregnancies. More than 70% of the women found HIV transmission from their husband or regular partner. **Conclusion:** Our study clearly depicts that ART adherence is losing importance subsequently due to frequent gaps in timeliness in collection of the drugs then the actual time allotted for drug collection. The age, education occupation and HIV status of spouse does not have any significant impact on adherence to ART. Our findings provide important new evidence basically on the ART adherence in context with the sero discordant couple.

INTRODUCTION

HIV discordance refers to a situation where one of the partners is HIV positive while the other is HIV negative. Studies have reported a high prevalence of HIV sero discordance among heterosexual couples in Africa. Sero discordant partnerships account for nearly 18–31% of couples in high HIV prevalence countries.[1-3] New HIV infections can occur in HIV sero-discordant as nearly 23% of married HIV positives PW have negative spouses. (PLHIV ART Line list data of Odisha). These sero-discordant couples have many socio cultural marital issues which may also create hindrances for ART adherence in HIV positive PW which is critical in elimination of mother to child transmission (EMTCT) of HIV infection. As per the sustainable development goal the elimination of the

ISSN (O): 2687-5365; ISSN (P): 2753-6556

transmission of HIV infection to the baby is very much possible if the 95-95 -95 target (1st 95 is the diagnosis of the 95 % of the PLHIV with the increase in screening coverage, the 2nd 95 is the connection of the PLHIV to ART services out of the identified positive cases and the 3rd 95 is the viral load suppression of the PLHIV) in a state can be achieved. Due to various effective strategies, Odisha is able to achieve the first two targets in last 3 years (2017-2019) as envisaged from the data of last 3 years from the SIMS & PALS software. The 3rd 95 target for which the continuation of the ART drugs consumption is a precondition throughout life is a challenge. The non adherence to ART by these pregnant women may be many but in the present study we focus on the ART adherence of HIV positive PW with sero-discordant spouses especially from the period 2015 as in this year the multi drug regimen was introduced by WHO for all pregnant women, a better option for elimination of mother to child transmission of HIV infection.[1]

Study Design

Retrospective data was collected for all positive Pregnant women those who were registered in 15 ART centre for ART services of the state Odisha of India from the period from April 2015 to Dec 2018 (n=919) The HIV test status of the spouses were matched along with the positive HIV pregnant women, were included as a comparison group (n=338) To know the ART adherence of the positive PW. The timelines in attending the ART center for 12 consecutive visits after the ART initiations were collected and assessed along with their alive, death, loss to follow up, opted out and transferred out indicators.

MATERIALS AND METHODS

Inclusion Criteria

All the married couple of positive PW, Spouses tested for HIV. Alive and initiated on ART

Exclusion Criteria

Widow, Separated, unmarried, and the spouses of the Positive pregnant women those who have not undergone HIV tests, the PLHIV died,opted out, transferred out after ART initiation were excluded in the study.

Statistical Analysis

The SPSS statistical software is used to analyse the various parameters for the study and draw hypotheses basing on the 95% confidence interval

In the present analysis, information on different background characteristics of HIV +ve pregnant woman & her spouse, adherence to ART, route of transmission, etc. were collected from a secondary data source i.e. the PALS line list Software of NACO. With matching criteria, total 338 numbers of samples were analysed and found that, about 80% of pregnant women are in 20 to 30 years of age.

RESULTS

Data also reveals that, more than 9% pregnancies have occurred in the adolescent age (19 years and below) which is a risk factor for the mother. Nearly 43% women have completed primary, 32% completed secondary and 14% completed higher secondary education. Still about 12% women were found illiterate and never gone to a school. A majority (93%) of the woman are house wife and 89% have experienced 2 or less pregnancies. More than 70% of the women found HIV transmission from their husband or regular partner.

Table 1: Demographic Profile of pregnant woman.

Background characteristics	N = 338	%
Age		
19yr & below	31	9.18
20 to 30 yr	270	79.88
31yr & above	37	10.94
Education		
Illiterate	40	11.8
Primary	145	42.9
Secondary	107	31.7
Higher secondary & above	46	13.6
Occupation		
Housewife	314	92.9
Others	24	7.1
Pregnancy order		
2 & less	300	88.8
3 & more	38	11.2
Pregnant Women case type		
Ante Natal Check up	307	90.8
No Ante Natal Check up	31	9.2
Route of transmission		
Regular partner/Spouse	239	70.7
Others	99	29.3
Gestational age		
1st trimester	66	19.5
2nd trimester	143	42.3
3rd trimester & above	129	38.2

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Table 2: Profile of spouse of pregnant woman

Background characteristics	N = 338	%
Age		
20 to 30 yr	176	52.1
31 to 40 yr	137	40.5
41yr & above	18	5.3
Education		
Illiterate	27	8.0
Primary	131	38.8
Secondary	125	37.0
Higher secondary & above	55	16.3
Occupation		
Agriculture worker/land holder	43	12.7
Non-agriculture worker	104	30.8
Service/business/skilled & semi-skilled worker	120	35.5
Others	71	21.0

More than half of the pregnant women's spouse's age is 20 to 30 years, while 40% are in the 31 to 40 years. Thirty nine percent and 37% have complete primary and secondary education respectively, still 8% were found illiterate. By occupation, 36% are Service/ business/ skilled & semi-skilled worker, 31% are non-agriculture worker and 13% are Agriculture worker/land holder.

Table 3: Concordant & discordant status by background characteristics of pregnant woman

Background characteristics	Concordant (PW+ve & Spouse +ve)		Discordant (PW+ve & Spouse -ve)		P-Value
	N	%	N	%	
Age					
19yr & below	28	90.3	3	9.7	0.282
20 to 30 yr	211	78.1	59	21.9	
31yr & above	29	78.4	8	21.6	
Education					
Illiterate	32	80.0	8	20.0	0.639
Primary	111	76.6	34	23.4	
Secondary	89	83.2	18	16.8	
Higher secondary & above	36	78.3	10	21.7	
Occupation					
Housewife	248	79.0	66	21.0	0.612
Others	20	83.3	4	16.7	
Total	268	79.3%	70	20.7%	

Table 4: ART Adherence of pregnant woman by their background characteristics

Background characteristics	Poor		Average		Good		P-Value
	N	%	N	%	N	%	
Age							
19yr & below	27	87.1	2	6.5	2	6.5	0.016
20 to 30 yr	250	92.6	19	7.0	1	0.4	
31yr & above	34	91.9	3	8.1	0	0.0	
Education							
Illiterate	38	95.0	2	5.0	0	0.0	0.354
Primary	129	89.0	15	10.3	1	0.7	
Secondary	99	92.5	6	5.6	2	1.9	
Higher secondary & above	45	97.8	1	2.2	0	0.0	
Occupation							
Housewife	289	92.0	22	7.0	3	1.0	0.867
Others	22	91.7	2	8.3	0	0.0	
Status of spouse							
Positive	248	92.5	18	6.7	2	0.7	0.741
Negative	63	90.0	6	8.6	1	1.4	
Total	311	92.0	24	7.1	3	0.9	

Adherence to ART was analysed to understand the continuation of medication by the women and analysed at three levels, (i) Good adherence - where continuation of medication is at least 95% in 12 visits, (ii) Average adherence- where continuation of medication is 80% to 95% and (iii) Poor adherence- where continuation of medication is below 80%. It is found that 92% of the women have poor, 7% have average and only 1% have good adherence to ART. However age, education, occupation and HIV status of spouse does not have any significant impact on adherence to ART.

DISCUSSION

Treatment of HIV with Antiretroviral Therapy includes which include a combination of antiretroviral drugs (ARV). It effectively suppresses viral replication and improves quality of life if

ISSN (O): 2687-5365; ISSN (P): 2753-6556

adherence is good. The clinical efficacy of antiretroviral therapy (ART) in suppressing the HIV virus and improving survival rates for those living with HIV have been well documented.[4-8] Successful ART (Antiretroviral therapy) is dependent on sustaining high levels of adherence, i.e., >95%.ART must be taken in right combination, right dosage & at right time. The minimum level of adherence required for antiretroviral drugs to work effectively is >95% to achieve full and durable viral suppression.[6-12] In field practice, this degree of adherence means the patients should not miss more than 3 doses of ART medication per month. Adherence to ART is influenced by factors associated with the patient, the disease, the therapy, and the relationship of the patient with healthcare provider.[4,5] Patient-related factors include socioeconomic status (SES) like, education, occupation etc.[2,3]

In our study it is found that more than 90% women in the lower age group (=20 yrs) this is about 78%. Literature review suggests that discordant relationships were found generally in younger, with more of them being less than 36 years old 2.The variations observed may be due to adapted methodologies : sampling methods, study areas, study designs, and subject characteristics Age has no correlation with the sero-discordant status of the PW as nearly 78% of the PW is in the age of less than 30 years .The ART adherence of the study population has no correlation with the age criteria of the patients in all age groups the adherence is found to be poor in more than 90% cases , average in middle 6% cases and only in 1% cases the adherence is good. Similar study of USA reveals that older adults with HIV have a reduced risk for non-adherence to ART than their younger counterparts, the reason being, this particular population are more cautious and/or after experiencing the initial devastating outcomes of the Acquired Immune Deficiency Syndrome Some other studies have concluded that age is not associated with improved adherence rates, and many older individuals demonstrate suboptimal adherence to treatment.[13-16]

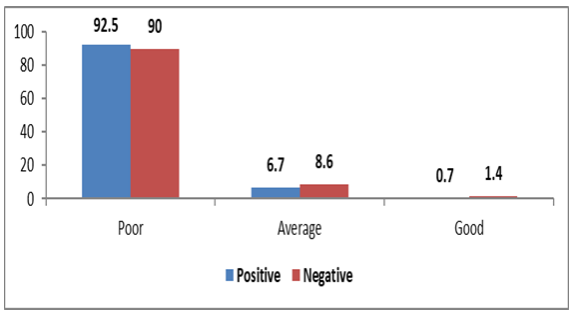
Level of literacy seems to have no significant association with concordant or discordant status, as 77% to 83% are concordant in all literacy groups. From the above study it is found that poor adherence is found in all the literacy groups A study from Gambia suggests that suggests that literacy, formal education and possibly Koranic education may impact favourably on adherence to ART.[17]

Our study shows that there is no association of socio-economic factors with the ART drug non adherence in case of the sero discordant and concordant spouses of the HIV positive PW. Findings of other studies of USA,[18] have suggested that lower socioeconomic status (measured by education or income) is associated strongly with poorer adherence to treatment. HIV is a disease that disproportionately affects those with socioeconomic disadvantage.[19,20]

This study also reveals that the occupational status has also not any relations to the dug adherence level as in 90% cases both in house wise and working in concordant group the adherence is poor. A systematic review of the evidence regarding the association of employment/ occupational status reveals that significantly and positively it is associated with the level of adherence in 7 studies (36.8%), 7 studies(28.0%), and 4 studies (23.5%) respectively.[21] Most of the reviewed articles did not attend to the complexities like implication of the sero discordant and concordant status on the ART. Adherence of the positive pregnant women depends mostly on three factors of SES: income, education, and occupation or employment status.

Our study focussed on this complexity and tried to see the association between the sero discordant statuses of the spouses with relation to the ART adherence. With the study subject and basing on criteria of guidelines of ART adherence the level of adherence is classified as good (where the adherence is more than 95 % (average ranges from 80 to 95%) and poor (below 80%). This we calculated basing on the timeliness of collection of ART drugs from the ART centre. In practical ART centre are issuing ART drugs for one month and in the ART white card mentioning the next date of collection of ART drugs. We have analysed the 12 consecutive visits date and which is again seen basing on the schedule time and actual time of visit. In our study it is found that the actual time of visit, there is also a variation. So if the actual time of visit is missed with three day then it is considered as poor adherence as the PW missed the drug for three day. It is found that out of the total study population only in case of around 1% of PW there is good adherence, in 7% there is average and in 90% it is poor. The degree of adherence is also associated with the concordant and discordant status of the spouses of the positive PW. A study of Rural Yunan China has taken 1618 discordant couple of which after the exclusion criteria taken 813 couple were followed up to see the impact of ART initiation in case of discordant status and found that with discordant status a greater proportion of HIV-positive partners were not receiving ART which is contrary to our study,[22] which says that the positive pw was initiated on ART due strict follow up but subsequently not continuing with the drug collection and consumption.

ISSN (O): 2687-5365; ISSN (P): 2753-6556



In our present study we found that although in the 99% of positive PW cases the access to drug is not a challenge but its adherence is losing importance in subsequent months. We tried to found out whether such gaps in collection is attributable to the sero discordant status of the spouses but it clearly reveals from our analysed data that in more than 90% cases there is no impact of the sero discordant status. Overall, non-adherence level in both sero discordant and concordant couple is mostly same.[23-30]

The reasons for non-adherence of ART drugs by the pregnant women may be many such as dependency on family members or others for monthly drug refilling from ARTC on the schedule date periodically, fear stigma and discrimination, lack of in time transport etc. So it is very important to assess the level of adherence aligning with different influencing factors.[31-38]

This finding is consistent with the similar finding of Botswana, Tanginia & Uganda.[32]

Ethical Approval

The study cleared the ethical approval from the Ethical Committee of Health and Family Department, Govt of Odisha, Eastern India and also clearance from National AIDS Control Organisation, H & FW Department, Govt. Of India.

CONCLUSION

Our study clearly depicts that ART adherence is losing importance subsequently due to frequent gaps in timeliness in collection of the drugs then the actual time allotted for drug collection. The age, education occupation and HIV status of spouse does not have any significant impact on adherence to ART. Our findings provide important new evidence basically on the ART adherence in context with the sero discordant couple.

The Govt need to focus and built strategies on the adherence of the drugs for these mothers for their babies, for the benefit of the subsequent pregnancies & also for the own health of the mother. Steps should also be taken for the pre-exposure prophylaxis, risk reduction & drug adherence counselling etc.

Further study needs to be done to find out the key factors responsible for poor adherence ART Drugs as the socio-economic status is not substantially have an impact of low drug adherence. So the other aspects such as transport cost, user fees, waiting times, good counselling, distance of ARTC, migration, loss of wages, ARV users face stigma and discrimination, lack of adequate social support and encouragements, fear of side effects, lack of space for confidential consultation, Lack of CD4 machine to measure the efficacy of drugs, ARV stock outs.

The state can achieve it very smoothly as it has proved in case of achieving the target set in 1st and 2nd 90 of EMTCT with focussed policies, plan and with to strict follow up but subsequently not continuing with the drug collection and consumption.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556