Original Research Article

Prevalence of HIV in antenatal women and awareness among them regarding PPTCT in GGH, Kadapa and implementation of PPTCT program in GGH, Kadapa

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Abstract

Background: As HIV infects humans and stays in their body for a lifetime decreasing their disease-fighting capacity and predisposing them to many opportunistic infections thereby compromising the quality of life, detecting the disease early, counselling people about the various modes of its transmission, starting ART early in pregnancy helps in reducing its transmission to the infant. **Aims & Objectives:** This study was undertaken to assess the prevalence of HIV among antenatal women and determine the awareness among them regarding the prevention of parent to child transmission and implementation of PPTCT among them in a tertiary care centre. **Methodology:** Over 14800 cases attending the antenatal OPD and admitting in labour ward have been screened for HIV from January 2019 to October 2020 in GGH; KADAPA. **Results:** About 92 cases were seropositive. A maximum number of cases with seropositive status were in the age group of 20-30. The youngest age was 17 years and the oldest age was 35 years. The seropositive pregnant women were clinically staged as per WHO in which maximum women belonged to STAGE 1. A maximum number of seropositive women were housewives and illiterates. Maximum no. of seropositive husbands were either truck or lorry drivers, daily labourers and migrants. 99% of the women were adherent to ART. HIV virus is transmitted through breast milk. Transmission rates for breastfeeding mothers may be as high as 30-40%, but with the regular usage of ART in mothers and babies this transmission has reduced significantly. Among 54 children who were born to HIV positive women, 53 babies tested negative and 1 baby whose mother was not taking ART regularly was tested positive for HIV at 6 weeks of age. ART was effective for prevention of transmission of HIV to children from their mother. HIV transmission rate is less in children whose mothers were on ART compared to children whose mothers were not on ART. **Conclusion:** Awareness among antenatal women regarding HIV, its transmission and Prevention of parent to child transfer was 65.25%. Few studies stated that utilisation of PPTCT program is influenced to a larger extent by the education level of the pregnant women. PPTCT is doing tremendous work aiming to provide a better life to HIV infected women, taking all the measures to prevent parent to child transfer and aiming to eradicate paediatric HIV.

Keywords: ART, HIV, Transmission, Pregnant woman, Breast milk.

Introduction

AIDS, also known as slim disease, is caused by a retrovirus known as HIV, which targets CD4 T cells which helps in fighting the disease. It is a retrovirus that encodes an enzyme reverse transcriptase allowing DNA to be transcribed from RNA. Once infected, the person will be infected for life. Infection with HIV leads to AIDS in about 8-10 years resulting in reduced immunity and opportunistic infections with increased morbidity and mortality.

An estimated 2.1 million (2011) people living with HIV (PLHIV) in India. National adult HIV prevalence is about 0.27% (2011). Among them, women constitute 39% of all PLHIV while children of less than 15 years constitute 7% of all infections. 0.1 million HIV positive children have been registered under the antiretroviral therapy (ART) programme as of March 2013, and 38,579 are receiving free ART.

A primary route of HIV infection in children is Mother-to-child-transmission of HIV. Out of an estimated 27 million pregnancies over a year, only 52.7% attended health services for skilled care during childbirth within India. Of those who have availed health services, 8.8 million ANCs received HIV counselling and testing (March 2013) out of which 12,500 pregnant women did test to be HIV positive. Universal HIV screening is incorporated as an integral component of routine ANC check-ups. It ensures that pregnant women diagnosed with HIV are linked to HIV services for their health and assures the prevention of HIV transmission to newborn babies under the PPTCT programme[1,2]

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If no intervention is taken, many infants born to women living with HIV obtain HIV infection from their mothers during pregnancy, during labour/delivery or breastfeeding.

The activities that are actively being performed by the PPTCT programme in INDIA.

1.Providing life-long ART (triple-drug regimen) to all pregnant and breastfeeding women living with HIV, in which all of them received ART regardless of CD4 count or WHO clinical stage, both for their health and to prevent vertical HIV transmission from mother-to-child" as per the new guidelines from WHO (June 2013).

2.Avoiding, stopping and starting of drugs with future pregnancies

3.Provide early protection against mother-to-child transmission in later pregnancies

4.Avoiding drug resistance

These proposals have the potential in reducing the risk of mother-to-child-transmission to less than 5 per cent in breastfeeding groups.

Need for the study

I undertook this study to determine the prevalence of HIV in pregnant women as early detection of HIV can prevent the disease from transmitting to the newborn and this transmission can be prevented through the measures taken by PPTCT. This study aims to determine the utilisation of PPTCT services by antenatal women and how PPTCT aims in reducing the knowledge gaps about HIV and its transmission.

Aims &Objectives

- Establishing the prevalence of HIV infection among all antenatal women in GGH, Kadapa.
- To determine awareness among antenatal women regarding prevention of parent to child transmission of HIV.
- Implementation of PPTCT by referring the newly diagnosed women and already diagnosed women who are not on art therapy to ICTC for management and prevention of further transmission

Source of the data
All antenatal women who attended the Obstetrics outpatient department for routine antenatal care and who got admitted in Obstetrics inpatient department at Government General Hospital, Kadapa.

Study period
January 2019- October 2020 (21 MONTHS)

Type of study
Cross-sectional descriptive study

Study area description
Kadapa is one of the 4 districts of Rayalaseema region in the southern part of Andhra Pradesh, INDIA. According to 2011 census of India, the district has a population of 344,893. It has a total of 489 health Facilities, both government and private with 15 VCTC centers providing counselling and testing.

Method of collecting data
To assess the prevalence of HIV among antenatal women, all the women fitting into the inclusion criteria are included in the study after obtaining informed consent.
To assess the awareness of PPTCT among antenatal women, a questionnaire has been prepared for all the antenatal women and answers are marked, and the score has been given individually. Based on the score, the awareness was devised as good, fair or poor.

Inclusion criteria
- The study includes Antenatal mothers in the age group of 17 to 35 yrs.
- Antenatal mothers who are willing to participate in the study.
- Antenatal mothers who can speak and understand Telugu, Hindi or English

Exclusion Criteria
- Antenatal mothers who are not physically and mentally well.
- Antenatal mothers who need emergency observation and treatment.
- Women who are not willing to participate in the study and have not given written consent.

Sampling
Convenient sampling method was used where all eligible women were asked to participate in the study.

Research instruments, measurements and data collection
Antenatal women presenting to the department of obstetrics (both inpatient who come for routine antenatal care and outpatient) from January 2019 to October 2020, Government General Hospital, Kadapa is subjected to study to determine the prevalence of HIV among antenatal women after properly counselling them the need for HIV testing and getting informed consent.
HIV test was performed on all the women participating in the study with rapid screening tests at PPTCT (done by Finger prick whole blood test by ELISA method). Those with positive rapid screening test results with unknown HIV status are confirmed by standard confirmatory tests (HIV-1 AND 2 antibody tests, done at ICTC. Positive patients were categorised as newly positive, known positive on ART, known positive not on ART. In newly positive women, the result is disclosed through one to one counselling sessions. The newly positive women were started on ART immediately and linked to an ART centre. The newly positive women were encouraged to inform their partners about their HIV status and offered to provide partner and other children testing. Specific investigations like serum CD4 count are performed in all the positive women at the start of ART at the ICTC centre.

Observations and results

1. Prevalence of HIV in pregnant women in the current study

In this study, a total of 14920 registered and unregistered cases were given pertest counselling for HIV testing, and 14800 gave consent for HIV testing. 120 women did not give consent for testing. Pertest counselling was given either individually or in groups.
After HIV testing, 92 women were found to be seropositive. Among the 92 women, 27 were newly diagnosed to be HIV positive in PPTCT & ICTC, Kadapa. Remaipretest women were already known positive cases and were using ART.
Prevalence of HIV in pregnant women= 92/14800 x100 = 0.62%
Incidence of HIV in pregnant women = 27/14800 x100 = 0.18%

Table 1: Prevalence of HIV infection in pregnant women.

HIV positive status	Frequency (percentage)
1. Negative	14708
2. Positive	92 (0.62%)- Prevalence
a. Known positive	65 (70.6%)
b .New positive	27 (29.3%)

Age distribution of the HIV positive pregnant women in the study group:67 (73.6%) cases in the present study were found in the age group of 21-30 years. 16(17.5%) cases were <20 years . 8(8.79%) cases were >30yrs. The youngest was 18 years, and the oldest was 35 years.

Table 2: Distribution of the HIV POSITIVE pregnant women based on Age

AGE	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
18	3	3.3	3.3	4.4
19	1	1.1	1.1	4.4
20	12	13.2	13.2	17.6
21	6	6.6	6.6	24.2
22	15	16.5	16.5	40.7
23	9	9.9	9.9	50.6
24	8	8.7	8.7	59.3
25	11	12.1	12.1	71.4
26	3	3.3	3.3	74.7
27	3	3.3	3.3	78
28	4	4.4	4.4	82.4
29	1	1.1	1.1	83.5
30	7	7.7	7.7	91.2
31	2	2.2	2.2	93.4
32	3	3.3	3.3	96.7
33	1	1.1	1.1	97.8
34	0	0	0	97.8
35	2	2.2	2.2	100

Table 3: Statistics of age distribution

VALID	92
MISSING	0
Mean	24.32
Median	23
Mode	22
Standard Deviation	0.42
Standard Error of Mean	4.05
MINIMUM	18
MAXIMUM	35
SUM	2213

Frequency distribution of Gravida status among HIV positive pregnant women:Out of 92 HIV positive women, 41(44.56%) were primigravida. 51(55.43%) women belonged to multigravida.

Table 4: Frequency distribution of gravida among HIV positive women

S.NO	GRAVIDA	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
1.	PRIMIGRAVIDA	41	44.56%	44.56%	44.56%
2.	MULTIGRAVIDA	51	55.43%	55.43%	100%

Frequency distribution of Husband HIV status in HIV positive pregnant women

Out of 92 HIV POSITIVE women, 2 women were unmarried, 66 women husbands also had HIV, 16 women husbands tested non-reactive to HIV and spouses of 7 women did not give consent for the test.

Table 5: Frequency distribution of Husband HIV status in HIV positive women

	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
UNMARRIED	2	2.2	2.2	2.2
POSITIVE	66	72.5	72.5	74.7
NON REACTIVE	16	17.6	17.6	92.3
NOT TESTED	7	7.7	7.7	100

Frequency distribution of husband occupation among HIV concordant couples

Among the 92 HIV positive women, 66 women had HIV positive husbands and accounted to HIV concordant couples. Among them, automobile drivers were (25.8%), farmers and coolies accounted for 53%, migrants accounted for (13.6%), theand those with other occupations accounted for 7.6%.

Table 6: Frequency distribution of husband occupation among HIV concordant couples

Occupation	Frequency (total n= 66)	Percentage
1. Automobile drivers	17	25.8%
Daily workers (farmers and coolies)	35	53%
3. Migrants	9	13.6%
4. Others	5	7.6%

Frequency distribution of socio-demographic factors among HIV positive pregnant women

The socio-demographic characteristics of seropositive women included age, occupation, residence, education, per capita income and Contraceptive practice. Majority of the HIV positive women in this study belonged to the age group of 20-30 years (86.8%), were housewives (91%), living in rural areas (86.9%), with low to nil literacy (32-51%), belonging to a low-income group (75%), denied any addictions except for tobacco chewing in 3 women (3.26%), but spouse history revealed a majority of the husbands addicted to alcohol (81,1%) and didn't use any contraceptive methods 86 (93.4%).

Table 7: Frequency distribution of various socio-demographic factors among HIV positive women

Socio-demographic factors	Categories	Number of women (92)	Percentage
1.Age	<20 years	4	4.39%
	20-30 years	79	86.8%
	30-35 years	8	8.8%
2.Occupation	Housewife	84	91%
	Daily worker	08	8.6%
3.Religion	Hindu	62	67.3%
	Muslim	9	9.7%
	Christian	21	22.8%
3.Residence	Urban	12	13.04%
	Rural	80	86.9%
4.Education	Illiterate	51	55.43%
	School education	32	34.78%
	High school	5	5.43%
	Graduate	4	4.34%

5.Percapita income	< Rs. 5000/ month > Rs. 5000/ month	69 23	75% 25%
6.Contraceptive practice	Condoms IUCD OCPs none	4 0 2 86	4.34% 0% 2.19% 93.4%
7.Addiction status a. Husband (n=90)	Alcohol Tobacco Illicit drugs	73 62 4	81.1% 68.8% 4.44%
B. seropositive women	Alcohol Tobacco Illicit drugs	0 3 0	0% 3.26% 0%

Frequency distribution of the outcome of pregnancy in HIV positive women

Among 92 HIV positive pregnant women, 1 woman opted for medical termination of pregnancy (MTP). 3 women presented with incomplete abortions and 1 woman with complete abortion after taking the MTP kits from unskilled providers. Total abortion cases were 5.

1 woman was admitted in view of complete hydatidiform mole, and suction evacuation was done. 1 woman presented with ruptured ectopic pregnancy and emergency laparotomy was done.1 woman had home delivery and was brought to the hospital immediately after delivery. 1 woman was admitted in view of IUD. 1 woman was admitted with an abruption and was later delivered by LSCS, and the baby died 2 days later.80 women had safe institutional delivery, and 4 women are yet to be delivered.

Table 8: Fate of pregnancy in seropositive women

	Present Study
MTP	5.4%
SPONTANEOUS ABORTIONS	0%
ECTOPIC PREGNANCY	1.08
VAGINAL DELIVERIES	70.3%
LSCS	29.6%

Frequency distribution of Mode of delivery in HIV positive women

Out of 92 HIV positive pregnancies, 80 cases had safe institutional delivery, and 1 case was home delivery. 4 cases are yet to be delivered. (6 cases had abortions, and one patient had ruptured ectopic pregnancy). Among the 80 institutional deliveries, 3 patients were delivered by outlet forceps, 24 were delivered by LSCS, and 53 were delivered by Vaginal delivery (7 were preterm and 1 was IUD). The newborn who tested positive at 6 weeks was delivered by Vaginal delivery at the hospital, and the mother was not on ART, and the new-born had inconsistent ART prophylaxis.

Frequency distribution of breastfeeding in HIV positive women

Out of 92 cases, 79 were live births. Among them 1 baby was preterm and died after 2 days in SNCU due to obstetric complication. 55 babies were given breastfeeding and 23 mothers refused to breastfeed their children even after counselling.

Table 9: Frequency Distribution of Breastfeeding in HIV positive women

Breastfeeding	Frequency(percentage)
1. Given	55(70.5%)
2. Not given	23(29.5%)

Frequency distribution of HIV positive status in new-born of HIV positive women 6 weeks after birth

Among 79 live births, EID testing was done under PPTCT in the new-borns at 6 weeks of age. 60 babies tested non-reactive, and one baby was tested positive. 7 babies died before 6 weeks of age. 8 cases are yet to be tested (have not reached 6 wks. yet by the end of the study). 3 babies were not brought for follow-up, could not be contacted and accounted for attrition.

Table 10 : Frequency distribution of baby HIV status at 6 weeks

EID status at 6 wks	Frequency (Percentage)	6 weeks of ART taken	No ART
HIV non-reactive	60(75.9%)	60 (100%)	0 (0%)
HIV positive	1(1.26%)	0 (0%)	1 (100%)
Died before 6wks	7(8.86%)	7	-
No follow up (ATTRITION)	3(3.79%)	-	-

Perinatal mortality in HIV POSITIVE women

Among the 92 HIV positive cases, 81 women crossed the period of viability (28 weeks) and delivered. Among those 81 deliveries, 4 cases resulted in the death of the fetus /neonate within 7 days after birth (1 IUD, 1 stillbirth, 2 babies died within 7 days after birth) corresponding to perinatal mortality.

Perinatal mortality rate= fetal and early neonatal deaths / total births (live and dead)x1000 births PMR= 04/81x1000= 49.3 I.e., Pregnancy in HIV positive women resulted in 49.3 perinatal deaths per 1000 births

Assessment of awareness about HIV, HIV transmission and PPTCT among HIV negative women in the study group

Among 14800 cases attending the antenatal department that gave consent for HIV testing, 14708 were tested negative. Out of those negative women, 400 women who gave consent and were willing to participate in the study were selected using a simple random technique for assessment of awareness about PPTCT. They were asked a questionnaire in order to assess the awareness about HIV, Maternal to child transmission and prevention of parent to child transmission of HIV. Scoring was given and based on the score people are categorised into having good, fair or poor knowledge(awareness)

Table 11: Sociodemographic characteristics of the study population (N=400)

CHARACTERISTIC Age (years)	N	%
20-25	254	63.5
26-30	116	29
> 30	30	7.5

Mean 25.36 SD ± 6.1		
Education level		
No Formal Education	83	20.75
Primary Education	97	24.25
Secondary Education	175	43.75
High school	45	11.25
Graduated	0	0
Formal Occupation		
Unemployed		
Housewife	210	60.25
Farmer(peasant)	72	18
Business	75	18.75
Employed	43	10.75
Gravida		
Primigravida	234	58.5
Multigravida	166	41.5

Table 19 shows that most of the 400(100%) interviewed clients in the age range of 20-35; the mean age was 25 (SD+/- 6). The majority had above primary education, 305(59.75%)

Table 12: Association between socio demographic characteristics and level of knowledge

	Knowledge level				
Sociodemographic characteristics	**Good (N,%)**	**Moderate (N,%)**	**Poor (N,%)**	**Total (N,%)**	p
AGE: 20-25 26-30 31-35	 169(66.53) 82(70.68) 10(33.33)	 53(20.86) 20(17.24) 7(23.33)	 32(12.59) 14(12.06) 13(43.33)	 254(100.0) 116(100.0) 30(100.0)	 P=0.009
Education Level : No Formal Education Primary Education Secondary Education High school Graduated	 26(31.32) 64(65.97) 135(77.14) 36(80) 0	 25(30.12) 23(23.71) 25(14.28) 7(15.55) 0	 32(38.55) 10(10.3) 15(8.57) 2(4.44) 0	 83(100) 97(100) 175(100) 45(100) 0	 P=0.000
Formal Occupation Employed Business Housewife Peasant, daily labour	 40(93) 60(80) 142(67.61) 19(26.3)	 2(4.65) 10(13.33) 45(21.42) 23(31.9)	 1(2.32) 5(6.66) 23(10.95) 30(41.66)	 43(100) 75(100) 210(100) 72(100)	 P=0.000
Gravida Primigravida Multigravida	 126(53.84) 135(81.3)	 68(29.05) 22(13.25)	 40(17.09) 9(5.42)	 234 166	

A score of 75% – 100%, 50% – 74% and less than 50% placed the respondent in good, moderate and poor respectively.

The table above shows that the was higher with a higher level of education, and in those employed or businesswomen with a statistically significant **(p<0.005).**

Table 13: Assessing the awareness among antenatal women about PPTCT

Awareness of women on HIV, ITS TRANSMISSION AND PPTCT	**YES(%)**	**NO(%)**
1.Have you ever heard of a disease called HIV OR AIDS	400(100)	O
2.Aware of your HIV status	245(61.25)	155(38.75)
3.Aware of your husband HIV status	111(27.75)	289(72.25)
4.Can a healthy-looking person be HIV positive?	343(85.7)	57(14.3)
5.MODES OF SPREAD OF HIV		
a. Blood / blood transfusion	328(82)	72(18)
b. Sharp objects or used injections	354(88.5%)	46(11.5%)
c. Mother to child during pregnancy	302(75.5%)	98(24.5)
d. Sexual mode	389(97.25%)	11(2.75)
e. Touching with hands	22(5.5)	378(94.5)
f. Mosquito bite	12(3)	388(97)
g. Saliva	87(21.75)	213(78.25)

6. Can you mention ways of preventing someone from acquiring HIV?		
a. Condom usage	322(80.54%)	78(19.5)
b. Having a single faithful sexual partner	375(93.75)	25
AWARENESS ABOUT MTCT		
7. Can an infected mother transmit the HIV virus to her child?	302(75.5%)	98(24.5)
8.What are the effects of HIV on baby?		
a. Low birth weight b. Preterm delivery c. HIV transmission to the child	260(65) 168(42) 308(77)	140(35) 238(58) 92(23)
9. Can HIV transmitted through breast milk?	271(67.75)	129(32.25)
10. What conditions in an infant increase the risk of acquiring HIV infection during breastfeeding? a. Mixed feeding. b. Oral ulcers or sores in the infant's mouth c. I don't know	 140(45) 112(28) 148(37)	 260(55) 288(72) 252(63)
AWARENESS ABOUT PPTCT		
11.Know screening for HIV in pregnant women are giving at the 1st antenatal check-up	318(79.5)	82(20.5)
12.Is there any medication given to the mother during pregnancy to reduce MTCT?	282(70.5)	118(29.5)
13. Do you think this medication (ART) reduces transmission of HIV from mother to baby?	258(64.5)	142(35.5)
14. Do you think using giving ART to child prevents HIV transmission to the child?	240(60)	160(40)
OVERALL KNOWLEDGE		
Good	261(65.25)	
Fair	80(20)	
Poor	59(14.75)	

A score of 75% – 100%, 50% – 74% and less than 50% placed the respondent in good, moderate, and poor.The table above shows that awareness was higher with a higher level of education, and in those employed or businesswomen, which was statistically significant (**p<0.005).**

Discussion

HIV, an RNA retrovirus, causes a severe infection which is about 8-10 years leads to AIDS in which the immune system is depleted that unusual bacterial and viral infections develop. The government of India is committed to achieving the global target of "elimination of new HIV infections among children, which can be achieved through the PPTCT programme. This study was conducted in government general hospital, Kadapa to study the prevalence of HIV among antenatal women, awareness about PPTCT among them, and implementation of PPTCT in GGH, Kadapa.

Table 14:Prevalence of HIV in antenatal women

STUDY	AREA	SAMPLE SIZE	PREVALENCE %	TIME OF STUDY
Present study	Kadapa, Andhra Pradesh	14800	0.62%	2019-2020
Michelle N. Fonseca et al[3]	Mumbai	58,205	0.31%	2010-18
Nayak et al[4]	Cuttack, Odisha	1600	0.5%	2014

In our study, the pre-test counselling rate was 100% (14920) and 99.2% (14800) accepted HIV testing and gave consent. Shirodkar et al., reported an acceptance rate of HIV testing of 72.0%.In the present study conducted at a tertiary care hospital, GGH Kadapa between 2019-2020 the prevalence of HIV among antenatal women is 0.62%. 92 cases were tested to be positive among the 14800 women who attended the antenatal OPD, which accounted for 0.62%. Among 92 cases, 65 were known positive cases and were using ART. The incidence of HIV in pregnant women in this study was 0.18% (27 cases).

This is similar to the study conducted by AJIT KUMAR NAIK et al. where prevalence was 0.55% and more. The above table shows the seroprevalence of HIV among antenatal women in various parts of INDIA during a different time period.

Table 15:Known HIV positive cases on ART

	Present study	Indarti j et al[6]
Cases already on ART	70.6%	50.7%

In the present study, the incidence of HIV in the antenatal women is 0.18%. The prevalence is 0.62%, which shows that most of the woet al. are known seropositive cases and are already using ART. In the study conducted by indrati et al[9], 50.7% of the antenatal women were already on ART. In the present study all the known positive cases were registered in concerned ICTC centres, and were getting their medication monthly from these centres

Table 16:Mean age of HIV positive antenatal women

	Present Study	Ira Shah et al[7]	Ajit Kumar Naik et al[4]
AGE	24.32	24.8±0.3	25± 0Naik

In this study the maximum number of HIV POSITIVE antenatal cases were wet al. the age group of 20-30 years with mean age of 24.32 years. Similarly in Ira shah, et al study 24.8±0.3 years was the mean age, and it was 25± 0.3 in Ajit Kumar naik et al. study. This, in turn indicates that young women between the age of 20-30 years are more prone to acquiring HIV epidemic most commonly attributed to unsafe sexual practices.

In the present study, 27.75% of the husbands of the total antenatal women tested only got their HIV serology tested when compared to 76.3% as per the study conducted by workie tigabu et al. This signifies that there is a need to increase awareness among antenatal women and their partners regarding the importance of spouse testing and this helps in identifying the HIV positive partner early and implementation of effective contraception in preventing the transmission of HIV from male to female partners and vice versa, thus preventing HIV transmission in the initial phase.

Table 17:Occupation of HIV positive pregnant women

Occupation of HIV positive pregnant women	Present study	Suman Bala et al.
Housewife	91%	83.33%
Employed	8.6%	16.67%

Most of the seropositive antenatal women in the present study are house wives. Even though most of the woman denied the route of contracting HIV, few revealed that they acquired the infection from their husbands. Housewives are more vulnerable for contracting HIV from their husbands who are truck drivers, migrants and coolies who tend to have a polygamous relationship and act as a bridging population, hence spreading the infection to the vulnerable wives who take care of the family. Many studies revealed that the HIV seroprevalence was significantly higher among villages situated close to highways explaining the reason for high prevalence among drivers and migrants.

Table 18:Parity among HIV positive pregnant women

	Present study	Michelle N. Fonseca et al	Suman Bala et al
PRIMIGRAVIDA	44.56%	50.88%	61.54%
MULTIGRAVIDA	55.43%	49.12%	38.46%

In our study 41(44.56%) of the antenatal seropositive mothers were primigravida, 51(55.43%) women are multigravida with the majority being housewives from low-income class, with a very poor educational background. Most of the women denied any kind of addiction, but 81.1% revealed that husbands had addictions to alcohol/tobacco/illicit drugs. 96.4%(86) of the women tested positive did not use any contraception. Most of them lived in rural areas (86%).

Table 19: occupations of husbands of HIV positive pregnant women

	Present Study	Ajit Kumar Nayak et al
1.Automobile drivers	25.8%	25%
2.Dailyworkers (farmers and coolies)	53%	15%
3.Migrants	13.6%	50%
4.Others	7.6%	10%

The spread of HIV occurs in various ways including through the partners of sex workers and "bridge population" the most significant of which appear to be long-distance truckers and men who migrate in states for seasonal work, construction and in other industries. In our study 50% seropositive pregnant women husbands were daily workers (farmers and coolies) who are illiterates and stay out of home for a long time. 25.8% seropositive pregnant women husbands are automobile drivers and 13.6% are migrants.

Table 20:Residence of HIV positive pregnant women

	Present study	Ajit Kumar Nayak et al	Michelle N. Fonseca et al
Rural	86.9	62.5	34.5
Urban	13.04	37.5	65.50

In the present study, about 86.9 % of the seropositive women resided in rural areas compared to 13.04% prevalence in women residing in urban areas. This is similar to the study conducted by Ajit Kumar Nayak et al where prevalence in rural areas was 62.5% and in urban population was 37.5%. This is in contrast to the study results published by Michelle N. Fonseca et al[3]In the present study more than half of the women were illiterates. This is in contrast to the study done by Ajit Kumar Nayak et al[4] where 75% of the women had school education. The prevalence of seropositivity among illiterate pregnant women was very high (3%) as compared to literate women (0.8%). In the present study, among the women who crossed the period of viability 13(16.04%) were preterm live deliveries and 82.83% were full term live births. There were 2 intrauterine deaths and stillbirths. There were 10 (12.34%) NICU admissions, and 2 babies (2.42%) died within the first 7 days of birth. Of all the live-births, 30.87% were preterm.. Our study's perinatal mortality rate, i.e. among the babies born to seropositive mothers, was 4.93%. In the study conducted by Michelle N. Fonseca et al.[3] There were 29 NICU admissions (19.46%) and 3 babies (2.01%) died within the first 7 days of birth. The perinatal mortality rate was 5.19%, which was significantly greater. In our study, 5.4% opted for MTP; no one had a spontaneous abortion and 1.08% an ectopic pregnancy. From the 81 seropositive women that gave birth; 70.3% seropositive women- 3.23%. There were also more preterm births in the seropositive population (30.87%) compared to the seronegative women (22.70%) had vaginal deliveries and 29.6% had caesarean sections. There were 2 intrauterine deaths or stillbirths, and of all the live-births, 16.04 % were preterm deliveries. There were 10 NICU admissions (12.34%) and 2 babies (2.01%) died within the first 7 days of birth.

In the present study, the incidence of very low birth weight babies in the HIV positive antenatal women is 3.7%, and the incidence of low birth weight babies is 14.81%. The above data suggests the reason for increased NICU admissions and perinatal mortality rate among the babies born to seropositive mothers. Dried blood spot (DBS) test for diagnosis of HIV infection in babies from 6 weeks of age became available since 2009 to 2010. In the present study, the vertical transmission rate as tested by PCR using dry blood spot at 6 weeks was 1.26%. This was 4% in seenivasan et al study. The mother of the positive baby has not taken ART regularly, and the baby was not given nevirapine consistently. 400 antenatal women attending the antenatal OPD were questioned using a questionnaire to assess the awareness regarding HIV-AIDS, HIV transmission, and prevention of parent to child transmission. It revealed that 65.25% of the antenatal women had good knowledge, 20% of the women had fair knowledge, and 14.75% had very poor knowledge. The urban population has more access to information about HIV and PPTCT and ANC seeking behaviour than the rural population, and the other reason is time to time increase in awareness through social media and popular culture about health-related information.

In the present study, 97.25% of the women were aware that HIV could be transmitted through sexual contact and 80.54% of the women were aware that the use of a condom can protect against HIV transmission.

In the study conducted by Monika Parmar et al[9] 70.5% of the women are aware of the availability of ART for AIDS treatment and it improves the quality of life and prevents transmission of HIV from mother to child, 74% were aware of contracting infection by sexual contact with an infected partner, 77.4% were aware of increased risk of contracting HIV/AIDS by a sexual relationship with multiple partners.

Implementation of PPTCT: There has been an increase in the level of knowledge among antenatal women regarding HIV screening, safe sex, condom usage, various methods of transmission. The PPTCT programme aims to prevent perinatal transmission of HIV from an infected pregnant mother to the new-born baby. The program entails counselling and testing of pregnant women in the ICTCs[10]

Conclusion

- This study demonstrates that the prevalence of HIV in antenatal women is 0.6%.

- 65.25% of the antenatal women had good awareness regarding HIV and PPTCT.
- The implementation of PPTCT in the tertiary care centre GGH, Kadapa was considered to be good.
- There was relatively high knowledge among the mothers above safe sex, family planning services, and condom usage.
- Among HIV positive women all the women were registered in ICTC centres, more than 95% of the women were using ART regularly, and all the babies were given ART. The vertical transmission rate as tested at 6 weeks of age was literally very low at 1.85%.
- In a developing country like India, with a majority of the population living in rural areas and low level of education, prevention of HIV is a difficult task to achieve. This is where the program of PPTCT plays a vital role in bridging the knowledge gap among the uneducated women, reducing the misunderstandings, misconceptions regarding transmission, treatment and prevention of parent to child transmission among pregnant women and reducing the stigma associated with seroprevalence, counselling the family members to provide complete support to the seropositive women.
- PPTCT programme aims at working towards primary prevention of HIV among women, preventing unintended pregnancies, prevention of parent to child transfer, care, support and treatment of HIV POSITIVE women and her child.

Health care workers are improving awareness about HIV among people. Diagnosing HIV early in pregnancy, linking the positive women to the ART centre, follow up of the woman throughout the pregnancy, checking the CD4 count , any opportunistic infections, checking for the defaulters at every check-up is done. Thus, aiming at reducing the mortality associated with the infection in pregnant women and also aiming towards the goal of paediatric HIV elimination.However, there is still a huge gap in the awareness about HIV in various groups of people and the stigma associated with the disease. PPTCT program is aiming to reduce this gap constantly and provide a healthy life to HIV infected mothers and their children.

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