Pregnancy Outcome in HIV Seropositive Women

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Summary

Our Study evaluates the maternal and perinatal outcome of HIV seropositive women. Antenatal patients were offered HIV testing after pretest counselling. 116 seropositive patients were followed throughout pregnancy for maternal and foetal outcome.

24.1% seropositive women as against 12.7% seronegative women were in their teens. 20.7% HIV positive women had an additional sexually transmitted disease compared to only 4.6% HIV-ve patients. The seropositive women were at a 1.5 times greater risk of developing antepartum complications. Relationship of seropositivity with prelabor rupture of membranes (24.2% vs 8%) and intrauterine growth retardation (14.7% vs 3.3%) were statistically significant. Incidence of preterm labor (22.1% vs 12%) and intrauterine death (8.4% vs 4.6%) were higher in HIV positive group. Rate of wound infection was higher (6.3% vs 4%) and the infections were more severe and resistant to treatment in HIV positive group. They were also at a higher risk of having preterm (19.1% vs 10.8%) and low birth weight babies (22.5% vs 13.0%), stillbirths (8.25% vs 4.6%) and neonatal deaths (5.6% vs 1.4%).

Teenagers and patients with STD's are an important risk group. Maternal and perinatal morbidity is higher in seropositive women. Innovative interventions need to be designed to reduce the maternal and perinatal morbidity.

Introduction

The anonymous unlinked serosurveillance of HIV infection in antenatal clinics (pregnant women surveyed) of 3 to 4% in public hospitals in western Maharashtra is heralding an epidemic of pediatric AIDS.

Materials and Methods

This study was undertaken at antenatal clinics from February, 1996 to January, 1998 at the Sassoon general Hospital, Pune and from January, 1998 to December, 1998 at Sir J.J. Hospital, Mumbai with the objective to assess the influence of Human Immunodeficiency Virus type-1 infection on pregnancy outcome.

The study comprises of 116 seropositive women with 150 seronegative women as control. Diagnosis was made with two consecutive positive ELISA results and the patients were staged as per the CDC criteria. Possibility of foetal transmission was discussed with the patient and termination was offered upto 20 weeks of gestation. Those desirous of continuing pregnancy were followed through their antepartum, intrapartum and 4 weeks postpartum period. The focus for evaluation was mainly demographic characteristics, association of STD, development of opportunistic infections and puerperal sepsis in mothers. Clinical evaluation of neonate included birth weight, Apgar score, assessment of gestational age and neonatal complications.

Results

24.1% of the seropositive patients were in the teenage group as against 12.7% in the control (Table I). 46.6% were primigravida as against 53.4% multigravida. Eighty two percent of our seropositive patients were referrals from private practitioners following routine antenatal screening. Partner notification, history of previous foetal wastage and seropositivity in previous child were other reasons for testing HIV status.

74.2% patients reported in the third trimester and 17.2% before 20 weeks of gestation (Table II). Seventeen patients were offered MTP, 3 had spontaneous abortions, 1 had a vesicular mole and 2 delivered twins in the study group. Of these, 95.7% i.e. 111 were in CDC stage II, 1 in Stage

Table I

Age Distribution

Age Group	HIV +ve	Percentage	HIV –ve	Percentage
15 – 19 yrs	28	24.1	19	12.7
20 – 25 yrs	51	44.0	111	74.0
26 – 30 yrs	30	25.8	13	8.6
31 – 35 yrs	6	5.2	7	4.3
36 – 40 yrs	1	0.8	0	0

Table II

Detection of Seropositivity and Gestational age

Weeks of pregnancy	No. of seropositive	Percentage
Upto 20 wks	20	17.2
21 – 28	10	8.6
29 – 42	86	74.2

III with chronic nonspecific lymphadenitis and 4 in stage IV with 3 having miliary tuberculosis and 1 tuberculous meningitis. Both groups were comparable in terms of parity. History of previous foetal wastage in seropositive was 24.2% as against 21.2% in seronegative women. There was a significant association of seropositivity with presence of other sexually transmitted diseases (207% vs 46%, $p < 0.05$ significant) (Table III)- HIV positive pregnant women were at a higher risk of having a complicated antepartum course compared to the HIV negative (59.6% vs 38.6%, $p < 0.05$ significant), the risk being 1.5 times greater (Table IV). The obstetric complications predominated with a significant association of prelabor rupture of membranes with seropositivity (24.2% vs 8%, $p < 0.05$ significant) and intrauterine deaths (8.4% vs 4.6%, $p > 0.05$, were not significantly higher in study group. All the 14 patients with intrauterine growth retardation had no other risk factor except a seropositive status (14.7% vs 3.3%, $p < 0.05$ significant) (Table V) 12 patients were delivered by caesarean section for obstetric indications.

Seventy percent of the mothers decided to breast feed. Only 6.3% seropositive patients had a puerperal infection (6.3% vs 4%, $p > 0.05$ not significant). However, the severity of puerperal sepsis was higher in the HIV positive group, 2 out of 6 cases were Grade III for which exploratory laparotomy was performed in 1 case. The

Table III

Relationship with Other STD's

Presence of an added STD	HIV +ve	Percentage	HIV –ve	Percentage	X^2
*Total	24	20.7	7	4.6	14.7
Syphilis	11		6		
Molluscum Contagosum	2				
Genital warts	3		1		
Candidiasis	5				
Herpes	1				
Condylomata acuminata	2				

*$X^2 = 14.7$, $p < 0.05$ significant.

Table IV

Antepartum Course

	HIV +ve	Percentage	HIV –ve	Percentage
Uneventful	40	40.4	92	61.3
*Complicated	59	59.6	58	38.6
MTP	17	14.7		

*$X^2 = 9.66$, $p < 0.05$ significant.

Table V

Antepartum Complications

Obstetric Complications	HIV +ve	Percentage	HIV –ve	Percentage	X^2	P value
Preterm Labor	21	22.1	18	12	3.71	> 0.05
PROM	23	24.2	12	8	11.9	< 0.05
IUGR	14	14.7	5	3.3	9.04	< 0.05
IUD	8	8.4	7	4.6	0.86	> 0.05

infections were resistant and required 3rd generation cephalosporins. Recovery time was 30 days compared to 10 days in the control group. Causative organisms identified were Klebsiella, E.coli, Staphylococci, Pseudomonas and Citrobacter in both the groups (Table VI).

Table VI

Postpartum Period

Complication	HIV +ve	HIV –ve
*Puerperal Sepsis	6 (6.3%)	6 (4%)
Grade I	4	4
Grade II!	2	2
**Wound Infection	3/13	4/33

*$X^2 = 0.24$, $p > 0.05$ not significant

**$X^2 = 0.22$, $p > 0.05$ not significant

The mean birth weights remained comparable in neonates of both groups viz 2.33 + 0.72 and 2.47 +0.52, t test = 1.19. Stillbirths and neonatal deaths were higher in the HIV seropositive mothers (Table VII).

Discussion

Various investigators have studied the obstetric and neonatal outcome in infected women. However, lack of appropriate control groups, grossly varying sample sizes and unclear pathogenesis of transmission, nutrition and coinfections are common prolems that preclude adequate control of potentially confounding variables, thus, continuing the controversy of the study results.

A high incidence of 24.1% of seropositivity in teenage

Table VII

Foetal Outcome

	HIV +ve	Percentage	HIV –ve	Percentage	X^2	p value
Live Births	89/97 (89 including 2 twins pregnancies)	91.8	138/150	92.0	0.65	> 0.05
Mean B. W.	2.33		2.47			> 0.05
Preterm	17	19.1	15	10.8	2.38	> 0.05
LBW	20	22.5	18	13.0	2.80	> 0.05
Stillbirths	8/97	8.25	7	4.6	0.65	> 0.05
Neonatal deaths	5/89	5.6	2	1.4	1.90	> 0.05

group reveals a life style of early sexual behaviour. 20.7% association of STD in seropositive patients in our study is comparable to 17.6% and 33% reported by Minkoff et al (1990) and Gloeb et al (1988) respectively.

History of foetal wastage was obtained in 24.2% in the study group and was similar to 26.5% reported by Lepage et al (1991).

Incidence of prelabour rupture of membranes was observed in 24.2%. Minkoff H. et al (1987) and (1990), Gloeb et al (1988) and Temmerman et al. (1990) also reported prelabour rupture of membranes in seropositive women to be 50% and 31.25%, 15.4% and 37.1% respectively (Table VIII) in the study.

Neonatal outcome in our study revealed that the mean birth weight of babies in the study was 120 gms lower than that in the control. Similar trend reported by Braddick et al (1990) showed 3 fold increase in low birth weight babies in HIV seropositive women. Lepage et al 1991 found that babies weighed 130 gms lower than those in the control group.

The incidence of low birth weight babies was 22.5% vs 13.0%; and was similar to that reported by

Table VIII

Study Comparison (Obstetrical Outcome)

Study	Ass. STD	Past O/H	PROM
1. Present study	20.7% vs 4.6%	24.2% vs 21.2%	24.2% vs 8%
	$p < 0.05$		$p < 0.05$
2. Minkoff. H et al (1987)			50%
3. Minkoff. H et al (1990)	17.6% vs 7.1%		31.25%
	$p < 0.017$		
4. Gloeb D J et al (1988)	33%		15.4%
5. Lepage P et al (1991)		26.5% vs 15.3%	
		$p<0.01$	
6. Temmerman M. et al (1990)			37.1%

Table IX

Foetal Outcome

Study	Mean B.W	Prematurity	LBW	Stillbirth
Present	Diff. Of 120 gms	19.1% vs 10.8%	22.5% vs 13.0%	8.25% vs 4.6%
Braddick M, et al (1990)	Diff. Of 130 gms	Not significant	3 – fold greater in sero +ve	
Lepage P. et al (1991)	Diff. Of 130 gms			
Temmerman M. et al (1990)		8.6%	7.7%	11.6%
Kumar R M et al (1995)			21.6% vs 9.8% $p > 0.05$	4.6% vs 0%

Kumar et al (1995) viz 21.6% vs 9.8% (Table IX). However Algar et al (1993) concluded that HIV infection in asymptomatic women does not influence perinatal outcome. Temmerman et al (1990) and Kumar et al (1995) reported significantly high incidence of stillbirth, prematurity and postpartum endometritis in their study population.

Conclusion

The incidence of seropositivity is high in the teenage group, which is already vulnerable to greater maternal morbidity and mortality. The impact of human immunodeficiency virus on pregnancy continues to be inconclusive in literature. Significant infectious morbidity of serious nature is seen in seropositive pregnant women. Perinatal outcome is also poor though not statistically significantly different. Therefore, primary prevention in the form of increasing age at marriage and safe sex appear to be the corner stones in decreasing this adverse impact of the HIV epidemic. In our set up, more than 70% of the patients were detected in the last trimester. Hence short term THI Regime and elective LSCS as recommended in recent literature should be implemented to reduce vertical transmission.

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