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Research Article

Sexually transmitted diseases in laboring women: trend over a decade

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ABSTRACT

Background: Center for Disease Control (CDC) recommends routine screening in all pregnant women at first visit for syphilis, HIV, Hepatitis B infection as they have high vertical transmission rate. Syphilis is brought to control by screening and early treatment with penicillin, whereas HIV and Hepatitis B are incurable viral infections till date. Hence prevention is the only way to control the disease in the population. The purpose of the study is to know the burden of sexually transmitted diseases, so that prevention programme is better planned.

Methods: This is a retrospective analytical study conducted from January 2005 to December 2014, in Karnataka Institute of Medical Sciences, Hubli, Karnataka. All the patients who delivered in septic ward, who were more than 28 weeks of gestation and who were HIV, HBsAg or VDRL positive were included in the study.

Results: Among the total of 79,472 deliveries, the prevalence of HIV, HBsAg and VDRL were 0.90, 1.06 and 0.31 respectively. There were 4 cases of co-infection. The prevalence of HIV was 0.79 in 2005 and reached its peak of 1.33 in 2008 and then showed a steady decrease, reaching a lowest of 0.52 in 2014. The prevalence of HBsAg was 0.70 in 2005 and reached a peak of 1.57 in 2014. The prevalence of VDRL was highest of 0.08 in 2005 and lowest of 0.02 in 2014. Highest operative deliveries were seen in HBsAg positive women. Stillbirths were maximum in VDRL positive women and least in HBsAg positive women. There were 9 maternal deaths in HIV positive women and 3 maternal deaths in HBsAg positive women.

Conclusions: In our study HIV prevalence is showing a down trend and syphilis is at the verge of elimination as seen globally. However prevalence of Hepatitis B has shown a rising trend over a decade in our institute, unlike a down trend seen globally. Intensifying the screening of Hepatitis B in pregnancy and Immunisation programme of neonates, reducing overcrowding and providing better living conditions, improving hygiene and health education should be done in order to reduce the prevalence of Hepatitis B infection.

Keywords: Syphilis, Hepatitis B, HIV, Vertical transmission, Maternal mortality

INTRODUCTION

Sexually transmitted diseases are relatively common in pregnancy. Center for Disease Control (CDC) recommends routine screening in all pregnant women at first visit for syphilis, HIV, Hepatitis B infection as they have high vertical transmission rate. Whereas other infections such as chlamydia, herpes simplex, Hepatitis C, trichomoniasis, gonorrhoea, bacterial vaginosis are

looked for whenever suspected or in high risk population.¹

In HIV vertical transmission to the fetus is around 30%.² The vertical transmission occurs during antenatal, intrapartum and also during breastfeeding. Antiretroviral therapy during antenatal and intrapartum period, elective caesarean operation in selected cases and avoiding breastfeeding can bring down the vertical transmission rate to less than 2%. In Hepatitis B infection, most of the

vertical transmission (85%) occurs in the peripartum period by ingestion of infected maternal fluid and only 15% transplacentally.³ Ten percent of infants born to women with acute HBV infection during the first trimester of pregnancy are HBsAg-positive at birth and 80 to 90% of neonates become HBsAg-positive without prophylactic therapy if acute maternal infection develops during the third trimester of pregnancy.⁴ Prenatal treatment with nucleoside analogue for women with high viremia may improve the efficacy of neonatal immunoprophylaxis. Combination of HBIG (Hepatitis B Immunoglobulin) and Hepatitis B vaccination, reduces transmission rate to 3 - 7% when given no later than 12 hours after birth.

Syphilis at any stage in a pregnant women has an effect on the offspring. This effect depends upon the time of infection. First trimester abortions are relatively uncommon, but second trimester abortions do occur. It may result in premature delivery if the fetus is infected and also cause congenital syphilis in the new born. Risk of infection of the fetus during untreated early maternal syphilis is 75 – 95% decreasing to 35% approximately for maternal syphilis of more than 2 years. Treating with penicillin reduces the chance of vertical transmission.⁵ Syphilis is brought to control by screening and early treatment with penicillin, whereas HIV and Hepatitis B are incurable viral infections till date. Hence prevention is the only way to control the disease in the population. The purpose of the study is to know the burden of sexually transmitted diseases, which not only have maternal and peri-natal morbidity but also are a health hazard for the medical personnel, so that the purpose of screening these diseases in the population is reiterated

and prevention programme is better planned, as antenatal mothers are the proxy of the disease in the population.

Aims

To find out the trend of sexually transmitted disease over a decade and to find out the prevalence, perinatal mortality and maternal mortality of HIV, Hepatitis B and Syphilis infected mothers delivered in KIMS, between January 2005 to December 2014.

METHODS

This is a retrospective analytical study conducted at our tertiary care centre from January 2005 to December 2014, in Karnataka Institute of Medical Sciences, Hubli, Karnataka. The case files of all the patients who underwent delivery in septic labour ward in KIMS, were taken from the medical records section and reviewed in detail. All the patients who delivered in septic ward, who were more than 28 weeks of gestation and who were HIV, HBsAg or VDRL positive were included in the study. The following parameters such as demography, prevalence, mode of delivery, maternal and perinatal morbidity and mortality rates were obtained.

RESULTS

Table 1: Age group of the infected women.

Age	HIV	HBsAg	VDRL
<20	12	73	2
20-30	688	750	20
>30	4	52	4

Table 2: Year wise distribution of STD deliveries.

Year	Total deliveries	HIV	HIV prevalence	HBsAg	HBSAg prevalence	Syphilis	Syphilis prevalence
2005	5651	45	0.79	40	0.70	5	0.08
2006	6421	65	1.01	52	0.80	1	0.01
2007	6990	82	1.17	55	0.70	2	0.03
2008	7253	97	1.33	63	0.86	1	0.01
2009	8160	91	1.11	72	0.88	4	0.04
2010	8563	93	1.08	85	0.94	4	0.05
2011	8610	67	0.77	95	1.10	2	0.02
2012	8652	57	0.65	113	1.53	3	0.03
2013	9532	56	0.58	148	1.55	2	0.02
2014	9640	51	0.52	152	1.57	2	0.02
Total	79,472	704	0.90	875	1.06	26	0.31

There were 79,472 deliveries in the study period. Among these the prevalence of HIV, HBsAg and VDRL were 0.90, 1.06 and 0.31 respectively. There were 4 cases of co-infection (3 cases of HIV+HBsAg and 1 case of

HBsAg +VDRL). The age group distribution of infected women is given in Table 1. Maximum number of infected women was seen in the age group of 20 to 30years. The year wise cases of STD's and their prevalence are shown

in Table 2. The prevalence of HIV was 0.79 in 2005 and reached its peak of 1.33 in 2008 and then showed a steady decrease, reaching a lowest of 0.52 in 2014. The prevalence of HBsAg was 0.70 in 2005 and reached a peak of 1.57 in 2014. The prevalence of VDRL was highest of 0.08 in 2005 and lowest of 0.02 in 2014. This rising trend of Hepatitis and downward trend of HIV is seen in Figure 1. Table 3, shows the mode of delivery in the infected women, with highest operative deliveries seen in HBsAg positive women. Stillbirths were maximum in VDRL positive women and least in HBsAg positive women as shown in Table 4. There were 9 maternal deaths in HIV positive women and 3 maternal deaths in HBsAg positive women.

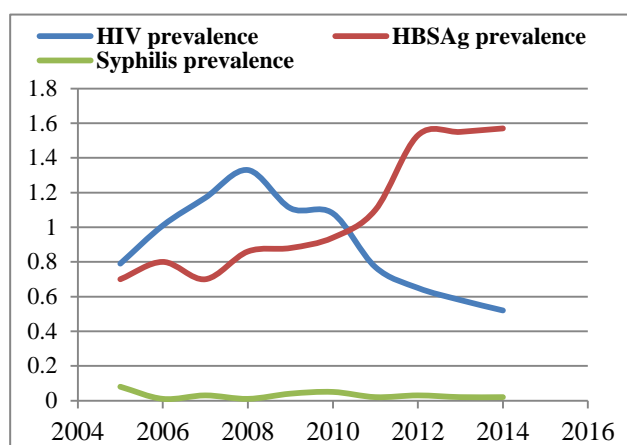


Figure 1: Line diagram of prevalence of STD's showing the trend over a decade.

Table 3: Mode of delivery in the infected women.

STD's	Vaginal	Forceps	Caesarean operation
HIV	570 (80.96%)	14 (1.98%)	120 (17.04 %)
HBsAg	661 (75.54%)	28 (3.2 %)	186 (21.25 %)
VDRL	26 (100%)	0 (0%)	0 (0%)

Table 4: Maternal and Perinatal mortality.

STD's	Stillbirths	Maternal mortality
HIV	65 (9.23%)	9 (1.2%)
HBsAg	51 (5.82%)	3 (0.34%)
VDRL	7 (26.92%)	0 (0%)

DISCUSSION

In our study of ten years the prevalence of prevalence of HIV, HBsAg and VDRL were 0.90, 1.06 and 0.31 respectively. Similar study was done by Mehta KD et al, in 2012 which showed seropositivity of Hepatitis B was 2.9%, hepatitis C was 0.19%, syphilis was 0.48%, and HIV was 0.38%. Out of the 1038 samples, no co-infection was found between hepatitis B, hepatitis C, syphilis, or HIV.⁶ Another study done by Khokar N et al showed that Seropositivity of HBV (3.03%), HCV

(0.19%), syphilis (0.49%), and HIV was 0.39%. Co-infection with syphilis and HIV was found in (0.29%) of patients.⁷ Both the study show high HBsAg prevalence and low VDRL prevalence when compared to HIV similar to our study. In our study the prevalence of HIV was 0.79 in 2005 and reached its peak of 1.33 in 2008 and then showed a steady decrease, reaching a lowest of 0.52 in 2014. According to the UNAIDS GAP report 2014, there is a declining trend of HIV across the globe, with a decline in number of people with newly detected HIV. In 2001, there were 3.4 million [3.3 million–3.6 million] new infections, where as in 2013, there were 2.1 million [1.9 million–2.4 million] new HIV infections, showing a decline of 38%. Around 900 000 new HIV infections among children since 2009 were prevented by providing antiretroviral medicines for pregnant women living with HIV.⁸ According to NACO Annual report 2012-13, India has the 3rd largest HIV epidemic in the world and overall India's HIV epidemic is slowing down, with 57% decline in new HIV infection between 2000 and 2011.⁹ According to the NACO Annual report 2014-15, the national HIV prevalence in ANC is 0.35% and 0.53% in Karnataka, standing fifth position in the nation. Highest Prevalance was recorded in Nagaland (0.88%), followed by Mizoram (0.68%), Manipur (0.64%).¹⁰ According to our study prevalence of HIV in our institute was 0.52% which was similar to prevalence of Karnataka.

Across the globe, the prevalence of chronic hepatitis B infection is variable, ranging from < 1% in low endemic areas and up to 30% in highly endemic areas. There has been an overall decline in the prevalence of the disease due to global infant and childhood vaccination programs.¹¹ Asia has the highest number of HBsAg carriers, followed by Africa. In Asia the most common form of transmission is perinatal transmission, whereas horizontal transmission in childhood is thought to be the predominant mode of transmission in Africa. The prevalence of Hepatitis B in India is 4% with 36 million carriers.¹² Within the country variable prevalence of Hepatitis B is seen from north to south, the lowest prevalence is 2.3% in a large cohort of 20,000 blood donors in northern India.¹³ The highest prevalence rate is 5.7% in a community based study in almost 2000 people from southern India.¹⁴ According to our study prevalence in 2014 is 1.57% and it has seen an increasing trend over a decade from 2005(0.7%).

According to WHO estimate in 2012, about a million pregnant women were infected with active syphilis globally and in India, about 103960 pregnant women were infected with syphilis making the prevalence 0.38%.¹⁵ According to CDC, the rate of syphilis initially declined to 89.7% during 1990–2000, and then increased annually during 2001–2009 before decreasing in 2010 and remaining unchanged during 2011. The rate again increased during 2012 and 2013.¹⁶ In the Indian scenario, programme data from National AIDS Control Organization (NACO) shows a declining trend of seropositivity of syphilis (as defined as being rapid

plasma reagin [RPR]/venereal disease research laboratory [VDRL] positive) among antenatal clinic (ANC) attendees at Designated STI/RTI clinics (DSRCs), from 1.7% in 2005–2006 to 0.8% since 2010–2011.¹⁵ In 2007, WHO launched global initiative to eliminate congenital syphilis and in 2011 dual elimination of HIV and Syphilis were launched. However in India, a national strategy “toward elimination of parent-to child transmission (E-PTCT) of syphilis” was launched in February 2015 by NACO under Ministry of Health and Family Welfare and World Health Organization (WHO). This strategy emphasizes the management of syphilis among pregnant women through a functional convergence approach. The goal of the strategy is to eliminate parent to child transmission E-PTCT of syphilis by 2017. It targets to reduce the incidence of congenital syphilis to <0.3 cases/1000 live births by 2017. The program targets to achieve the above goal are: ANC coverage (pregnant women having at least one ANC visit) of ≥95%, covering of syphilis testing of ANC attendees of ≥95% and treatment of syphilis-reactive ANC attendees of ≥95%.¹⁷ However in our study, prevalence of syphilis has always remained less than 0.1%, and has been fluctuating between 0.01% to a highest of 0.08%. This is far less than the National prevalence of syphilis and this can be explained with a fact that it is a curable disease and in our study, we have tried to find out the prevalence of syphilis among the labouring patients only.

CONCLUSIONS

In our study HIV prevalence is showing a down trend and syphilis is at the verge of elimination as seen globally. However prevalence of Hepatitis B has shown a rising trend over a decade in our institute, unlike a down trend seen globally. Intensifying the screening of Hepatitis B in pregnancy and Immunisation programme of neonates, reducing overcrowding and providing better living conditions, improving hygiene and health education should be done in order to reduce the prevalence of Hepatitis B infection.

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