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**RESEARCH ARTICLE**

**10 YEARS PREVALENCE OF HEPATITIS B INFECTION AMONG WOMEN DELIVERING AT KAMC-JEDDAH AND THEIR INFANTS.**

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**Manuscript Info**

**Abstract**

**Manuscript History**

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**Introduction:-**

Hepatitis B infection is a common infectious disease worldwide. There are nearly 2 billion people with hepatitis B infection throughout the world. About one million people die yearly from its complications(1). In Saudi Arabia, the ministry of health considers hepatitis B virus infection as second most common viral disease after chickenpox with almost 4700 new cases diagnosed annually(2).

Hepatitis B is an inflammation of the liver caused by specific type of virus called B virus, interaction of the virus and host immunity lead to liver injury which may be complicated by cirrhosis and hepatocellular carcinoma (HCC). HBV is transmitted through infected body fluid such as blood, semen and vaginal secretions. IV drug users, infected sexual contact, infant born to infected mothers are all at risk of development of the infection. Infected individual can be symptomatic or asymptomatic(3).

Mother-to-child transmission, is one of the most important cause of HBV carriers(4), that's why recommended to screen all pregnant ladies for HBsAg in the first antenatal visit specially in endemic areas (e.g. Saudi Arabia). Infection with hepatitis B in newborns of carrier mothers is the leading cause of development of chronicity state up to 80% of the disease, Interrupting of HBV transmission through administration a highly effective neonatal immune-prophylaxis by vaccination and intra-venous immunoglobulin (IVIG) in the first 24 hours of life has a major impact in reducing the prevalence of cases. Despite immune-prophylaxis there are still documented cases of vertical transmission of HBV(5). In study conducted in china (2014), Vertical transmission rate has been reported around (5.44%) of infants despite immune-prophylaxis. they recommended further studies should work on prevention of immune-prophylaxis failure. Several studies implied that Mothers with positive HBeAg, high maternal viral load and positive cord blood for HBV DNA are most important factors that contributed to immune-prophylaxis failure(6).

Other studies shows a correlation between risk factors such as mode of delivery, ante-partum complications, procedures, intra-partum intervention and HBV vertical transmission(7).

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The aim of study is to measure SCREENING RATES of mother and their infants for HBV and the failure rate immune-prophylaxis in preventing vertical transmission of HBV at King Abdul-Aziz Medical City, National Guard Hospital Affairs (KAMC, NGHA).

**The Research Problem:-**

To screening rates for mother and their infants for HBV and to measure failure rate of immune-prophylaxis in preventing vertical transmission of HBV at King Abdul-Aziz Medical City, National Guard Hospital Affairs (KAMC, NGHA).in the period between 2005-2014.

**Research objectives:-**

- To Identify screening rate of HbsAg of mothers and their infants.
- To Estimate the incidence of vertical transmission of HBV in infants of HBV carrier mothers.
- To count the incidence of HBV carrier state in pregnant women at KAMC in the period between 2005-2014.
- To correlate risk factors for failure of HBV immune-prophylaxis.

**Research Methodology:-**

This retrospective cross-sectional study was conducted at KAMC between Sep 2009 until Dec 2014. Medical records of all pregnant women with positive HBsAg and their infants were collected and reviewed. Maternal Demographic data, hepatitis serology, liver function test, antepartum procedures and duration of rupture of fetal membrane, mode of delivery, and perinatal tears were collected. Infant timing of initial HBV vaccination and administration of IVIG, subsequent HBV vaccination, and screening were collected.

The primary outcome was the screening rate of HbsAg in infant HBV among pregnant women delivering in KAMC-Jeddah.

The secondary outcomes were failure of infant immune-prophylaxis to achieve positive HBsAb at age of 6-12 months, and rate vertical transmission of HBV from carrier mothers to their infant's defined as HBsAg positive at age 6-12 months. All Data was managed by SPSS version 21.

**Results and Discussion:-**

This study is the first done in Saudi Arabia that addresses a health issue with a significant burden of disease. Hopping in results can help in primary prevention of HBV infection. Although Saudi Arabia is one of endemic areas of hepatitis B but still ante-natal screening for mothers is low for many reasons such as decrease awareness about HB infection among health care providers and society. Even after mothers being HBsAg positive after screening only about 38.18% of these infants was screened for HBV for many reasons such as maternal poor compliance, no booked appointment and emergent delivery cases. Which is despite recommendation against invasive interventional of mothers with infectious diseases (8).

Among 23,756 deliveries in the period between 2005-2014, 152 women with positive HBsAg were identified. Those women gave birth to 251 children during study period. Only 16.7 % (42/251) of infants were screened, none was found to have HBsAg.

7% of all children (18/251) were screened between age of 2-6 years. Only one child was found to have HbsAg positive at age of 5 years. Among screened children, 20% (14/60) were found to be susceptible at time of screening. 23.9 % (60/251) of children had antenatal invasive testing. 60 of them had done Fetal scalp electrode and with Chorionic villous sampling. 14 of them had HbeAg (9%) and 54% had abnormal liver function test. The mean age of screened mother found 31.17 years, with gestational age mean of delivery 38.99 weeks.

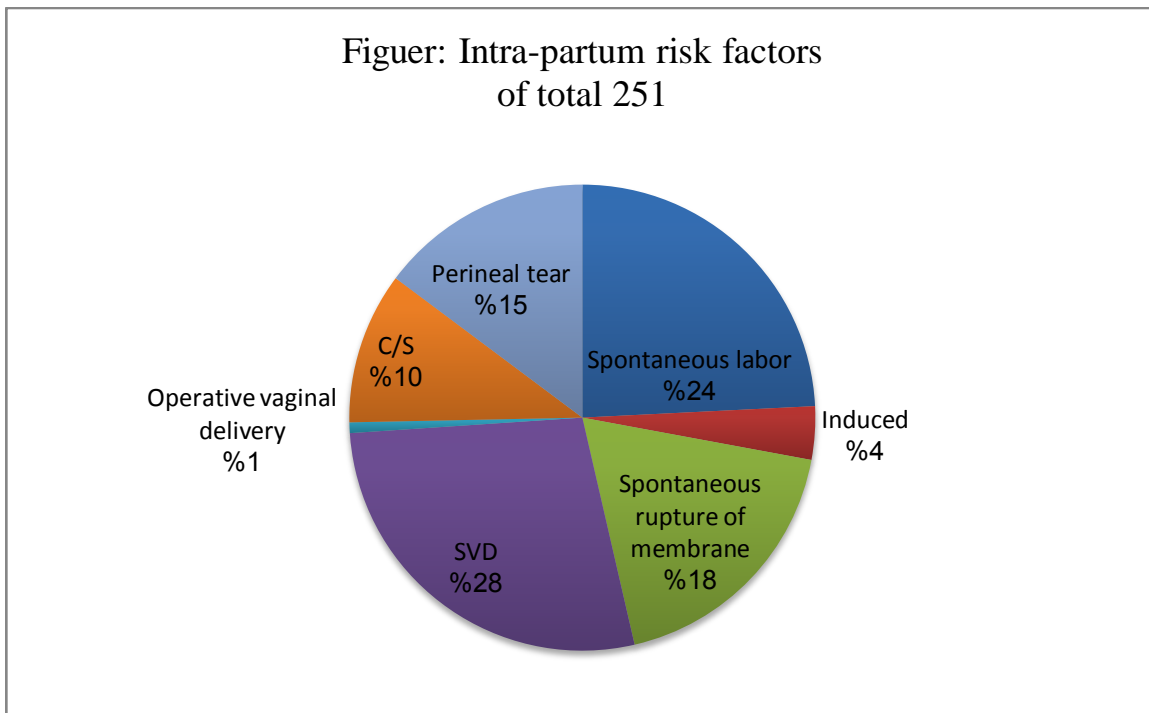
All 251 children that delivered were documented received first dose vaccine and 199 (79%) of them found to have IVIG within the first 24 hours after delivery.

In previous studies suggested the role of caesarian deliveries to achieve a better outcome in decreasing rate of vertical transmission by minimize the direct contact between mother and fetus in compare with vaginal deliveries (7).

One of changes dealt through conducting the study HBV It is relatively rare disease. Retrospective nature that relies on documentation and limited access all medical records due to lack of computerized health information system before 2009. A lot of infant got immunized in other health care facilities other than KAMC.

**Table 1:-** The rate of HBV screening among infant of HBV infected mothers

|                   |    |                          |  |
|-------------------|----|--------------------------|--|
| Rate of screening |    |                          |  |
| screened          | 60 | 23.9% of all HBV mothers |  |
| First year        | 44 | 70 %                     |  |
| Second            | 8  | 3.18%                    |  |
| Third             | 2  | 0.79%                    |  |
| Forth             | 1  | 0.39%                    |  |
| Fifth             | 2  | 0.79%                    |  |
| Sixth             | 3  | 1.19%                    |  |



**Figure 1:-** Intra-partum risk factors of total 251 deliveries.

**Conclusion:-**

Screening rates of HbsAg of 251 (38.18%)for infants and (23.9% ) for of total 152 women whom found with positive HBsAg period between 2005-2014 whom delivered in KAMC, NGHA. 70% of them during first year of infancy.

All 251 about 38.18% of these infants and children that delivered were documented received firstdose vaccine and 199 (79%) of them found to had IVIG within the first 24 hours after delivery.

There were an observed decreased numbers of maternal and infant screening rates for HBV. A Further studies are needed to determine the risk factors associated with failed immune-prophylaxis.

**Acknowledgment:-**

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**Perspectives:-**

Educating health care worker regarding the WHO recommendation for prevention of HBV vertical transmission. Institute a strong policy regarding screening and follow up for infant of HBV infected mother Educating the HBV infected mothers regarding the importance of infant screening. We will calculate the rate of HBV screening among pregnant women.

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