Prevalence of Reactive HBsAg in Pregnant Women at Binanga Health Center, Mamuju Regency

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ABSTRACT

Hepatitis B virus infection is an infectious disease caused by the Hepatitis B virus which is a global problem. It is estimated that more than 240 million people have been infected and every 620,000 people die from hepatitis B infection every year. Pregnant women range from Hepatitis B infection, can result in an increased risk of preterm birth, low birth weight (<2500 g), premature rupture of membranes, gestational diabetes, congenital abnormalities. Other consequences are miscarriage, liver damage, acute Hepatitis, or chronic, hepatocellular carcinoma. This aims of this study was determine the incidence of reactive pregnant women from the rapid test of HBsAg. Methods: This study was a descriptive observational study, by collecting data from the 2018 HBsAg examination sheet. The data sheet is the result of routine HBsAg examination in pregnant women Binanga Health Center, Mamuju Regency. . The independent variables identified were characteristic and sociodemographic data. Descriptive statistical tests were carried out in the form of frequency, percentage. The number of pregnant women who were reactive to HBsAg was 13 (2%) of 647 pregnant women throughout 2018, among those who were reactive were aged 20-30 years. However, pregnant women who are reactive to HBsAg are around the age of 20-30 years. The prevalence of reactive HBsAg in pregnant women in the Binanga Community Health Center is 13(2%).

Keywords: *HBV, HBsAg, Acute hepatitis*

ABSTRAK

Infeksi virus Hepatitis B adalah penyakit infeksi yang disebabkan oleh virus Hepatitis B yang menjadi masalah global. Diperkirakan lebih 240 juta jiwa telah terinfeksi dan setiap 620.000 jiwa meninggal akibat infeksi Hepatitis B setiap tahun. Wanita hamil rentang dari infeksi Hepatitis B, dapat menghasilkan peningkatan risiko kelahiran prematur, berat lahir rendah (<2500 g), ketuban pecah dini, diabetes gestasional, kelainan bawaan. Akibat lain adalah keguguran, kerusakan hati, Hepatitis akut, atau kronis, karsinoma hepatoseluler. **Tujuan**: penelitian ini bertujuan untuk mengetahui tingkat kejadian ibu hamil yang reaktif dari pemeriksaan rapid test HBsAg. **Metode:** Penelitian ini merupakan observasional deskriptif, dengan mengumpulkan data dari lembar pemeriksaan HBsAg tahun 2018. Lembar data tersebut merupakan hasil pemeriksaan HBsAg secara rutin pada ibu hamil. Variabel independen yang diidentifikasi adalah data karakteristik dan sosiodemografi. Uji Statistik deskriptif dilakukan berupa frekuensi, persentase. **Hasil:** Jumlah ibu hamil yang reaktif HBsAg adalah 13 (2%) dari 647 ibu hamil sepanjang tahun 2018, diantara yang reaktif berada di usia 20-30 tahun. Namun Ibu hamil yang reaktif HBsAg sekitar usia 20-30 tahun. **Kesimpulan:** Prevalensi HBsAg reaktif ibu Hamil di Wilayah Kerja Puskesmas Binanga adalah 13(2%).

Kata kunci: HBV, HBsAg, Hepatitis akut

INTRODUCTION

Hepatitis B virus is a virus that can cause acute and chronic liver infections. For the most part, this virus is transmitted by the mother-to-child route.[1] Chronic Hepatitis B virus (HBV) infection (Chronic Hepatitis B/CHB) is a global health problem. It is estimated that around 240 million people are infected worldwide, which can lead to the risk of liver disease and hepatocellular carcinoma (HCC). In HBV endemic areas, vertical or mother-to-child transmission becomes an important problem in the spread of

infection.[2,3] Hepatitis B virus (HBV) infection can cause acute or chronic Hepatitis. Previous HBV infections were much more common but there are still 240 million chronic HBV carriers today and approximately 620,000 die per year from late sequelae of liver cirrhosis or hepatocellular carcinoma.[2,3,5]

Hepatitis B virus (HBV) is acquired through exposure to contaminated blood products, sexual activity or perinatal transmission. Although the prevalence of HBV is relatively low in the US (0.4%), with approximately one million Americans chronically infected by HBV, the prevalence is higher in East Asia (8%), (China 2 -18%, Taiwan 2-19%) and Hong Kong 4-10%, Southeast Asia (> 6%) (Thailand 1-25% and India 1- 66%, and sub-Saharan Africa (8-12%). Since 1990 in America Both Tropical Latin and Central Latin America have seen a decline in the prevalence of HBV (to 1.6% in 2005), Indonesia 2-9%.[4,6] The 3.5 million patients with chronic Hepatitis B worldwide, 600,000 die from the associated disease each year. In Korea, the positive rate of Hepatitis B surface antigen (HBsAg) was high up to 10% in the 1980s.After the introduction of HBV vaccination in 1983, it decreased significantly to 3% in 2008.[7] Serological results show that the proportion of HBsAg positive in the Indonesian population is over the age of 1 year is 7.1% A higher proportion was found in the adult population hope than children.[8]

Several studies have shown that there is an increased risk of preterm delivery (odds ratio 1.4; 11.5% vs 7.9%, P < 0.001), low birth weight (< 2500 g) (odds ratio 1.39; 10.4% vs 7.8%, P = 0.009), premature rupture of membranes (8.9% vs 6.9%, P = 0.026), gestational diabetes (13.2% vs 8.8%, P < 0.02) and congenital abnormalities (odds ratio 1.55; 7.2% vs. 5.1%, P = 0.01) in pregnancy associated with HBV infection.[6] Miscarriage,[9] liver damage,[10] Acute or chronic hepatitis, cirrhosis of the liver, and hepatocellular carcinoma are the result of potentially life-threatening infections, and are a major global health problem.[11]

Diagnosis of chronic HBV infection is made by detecting Hepatitis B surface antigen (HBsAg) in serum for more than 6 months.[6] Preterm labor may increase if acute Hepatitis B is detected in the last trimester. Mother-to-child transmission occurs in more than 60% of pregnancies associated with acute HBV infection at or near term.[6]

Based on these facts, observations were made on examination data or HBsAg test results in pregnant women, with the aim of knowing the prevalence of HBsAg reactive pregnant women at the Binanga Health Center, Mamuju Regency. The results of the study can be used as information in handling pregnant women and providing preventive measures for transmission.

Conflict of Interest

All authors have no conflict of interest

MATERIAL AND METHOD

This research is descriptive observational, by observing the HBsAg examination/ screening data sheet at the Binanga Health Center. Existing data was processed using SPSS version 20. The study was conducted in August 2021, by collecting data only on the 2018 HBsAg examination sheet. The data sheet is the result of routine checks on pregnant women who visit the Binanga Health Center and “Posyandu”/health services in the Work Area. Binanga Health Center. HBsAg examination uses a rapid test by examining blood specimens. The main outcome (dependent variable) in this study was HBsAg status, which was coded 1 = 'reactive' and 0 = 'non-reactive'. The independent variables

identified were age, educational status, employment status, type of work, education level, gravida, parturition, abortion, gestational age and having lived at home with hepatitis sufferers. Descriptive statistics are calculated using frequency, percentage

RESULT AND DISCUSSION

The number of pregnant women who have been tested for HBsAg rapid tests is 647 throughout 2018. Some of the backgrounds of pregnant women participants such as characteristics, socio-demography and reactive and unreactive HBsAg are as shown in Table 1.

Tabel 1. Karakteristik partisipan ibu hamil

	Frequency	Percent (%)
Usia		
<15	2	0.3
15-24	219	33.8
25-34	341	52.6
35-44	83	12.8
>45	2	0.3
Level of education		
Primary school	138	21.3
Junior high school	83	12.8
high school	247	38.2
College	179	27.7
Job status		
Yes	272	42
No	375	58
Type of work		
Civil servant	34	5.3
Private	73	11.3
Trader	7	1.1
Other	533	82.3
Gravida		
1	207	32
2-3	298	46
4-5	108	16.7
5>	34	5.3
Parturition		
0	234	36.2
1	184	28.4
2-3	189	29.2
4-5	34	5.3
>6	6	0.9
Abortion		
0	542	83.7
1	78	12.1
2	25	3.9
3	2	0.3
Gestational age (weeks)		
<14	160	24.7
14-27	273	42.2
>27	214	33.1
Have you ever lived with someone with Hepatitis?		
Ya	3	0.5
Tdk	644	99.4

Examination of HBsAg on 647 pregnant women obtained 13 (2%) who were reactive or declared positive for HBsAg, can be seen in Table 2.

Tabel 2. Hasil pemeriksaan HBsAg

	Frequency	Percent (%)
Not Reactive	634	98
Reactive	13	2

In Table 3. it can be seen that the age of pregnant women who are HBsAg reactive is dominated by the age of 25-34 years, namely 7 (1%) and age 35-44 years at 4 (0.6%).

Tabel 3. Hasil Pemeriksaan HBsAg pada berbagai usia

Age	HBsAg Examination Results N=647			
	Not Reactive (%)		Reactive(%)	
<15	2	(0.3)	0	(0)
15-24	217	(33.5)	2	(0.3)
25-34	334	(51.6)	7	(1)
35-44	79	(12.2)	4	(0.6)
>45	2	(0.3)	0	(0)

Screening Hepatitis B by Rapid test, the specimen to be examined is blood. This Hepatitis B examination is a work program of

the Mamuju Health Office to detect pregnant women for Hepatitis B infection. The examination is carried out on pregnant women who visit the "Posyandu"/health services in the work area of the Community Health Center and pregnant women who visit the Community Health Center.

A reactive/positive HBsAg examination indicates the presence of Hepatitis B infection in the body. The results of the examination of HBsAg in the blood of pregnant women, obtained 13 (2%) of 647 pregnant women who were declared reactive. This result is smaller than the prevalence data for Hepatitis B surface antigen (HBsAg) in Indonesia in 2013 which was 7.1%, also compared to the prevalence data in Indonesia in 2007 which was 9.4%.[12] compared to other studies on the African continent, there were 10.9 % of 422 respondents who were examined for Hepatitis B surface antigen.[1] Based on research by Girawan D, Judistiani of 196 subjects with 12 (6.1%) of whom were HBsAg positive.[13]

Reactive HBsAg can potentially cause infection during pregnancy which will have an impact on fetal development including development, placental function, fetal growth restriction.[14] In addition, a positive HBsAg pregnancy can lead to a higher risk for the mother such as intrahepatic cholestasis pregnancy, postpartum hemorrhage. In vaginal delivery, positive HBsAg has a risk of placental abruption.[15] Pregnant women can undergo immunological transformation, in which the immune system is needed to enhance and support pregnancy and fetal growth.[16]

There are 1-9% of infants born with HBV infection to HBV carrier mothers, although newborns receive HBIG and active HBV vaccine in the neonatal period. This suggests that vaccination of mothers during the antenatal period can be beneficial in reducing the rate of transmission in the womb.[17] As prenatal HBV screening in Ontario and follow-up testing after a positive HBsAg test is still low, there is a potential for vertical HBV transmission. As a result, the number of children born positive for HBsAg.[18]

The age group of HBsAg positive or reactive pregnant women, the highest obtained at the age of 25-34 years is 7(1%). However, reactive HBsAg was also found at the age of 15-24 years and age 35-44 years. This shows that pregnant women range with the incidence of Hepatitis infection. Every age group has the potential to suffer from Hepatitis. Based on research by Al-Busaf S et al that there is a significant relationship between Hepatitis B virus (HBV) infection in the age group, and education level. However, socio-demographic characteristics did not affect HBV infection in pregnant women attending antenatal visits at Korle-Bu Ghana Teaching Hospital.[19] Ages 25-34 years were of working age, and the chances of getting pregnant in the next period would be greater. Routine antenatal screening of pregnant women and especially contact screening can reduce vertical and horizontal transmission of HBV.[20]

The incidence of new Hepatitis B cases can still continue in the early childhood period, which may be rooted in the low coverage of Hepatitis B immunization, which has the potential for mother to child HBV transmission from HBsAg positive pregnant women. Another problem is the high rate of HBV infection among young adults due to the presence of hidden Hepatitis B.[12]

Providing health education about Hepatitis B virus transmission, the benefits of vaccination, and routine screening for all pregnant women are very useful for virus prevention.[21] Screening or surveillance activities must be carried out to monitor the impact of progress on the Hepatitis B

reduction program such as the incidence of positive cases, deaths and services.[22]

CONCLUSION

Based on the research, it was found that there are still pregnant women in the working area of the Binanga Health Center in Mamuju Regency who are HBsAg reactive.

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