Jurnal Bidan Cerdas
e-ISSN: 2654-9352 dan p-ISSN: 2715-9965
Volume 5 Nomor 4, 2023, Halaman 220 – 226
DOI: 10.33860/jbc.v5i4.3262
Website:https://jurnal.poltekkespalu.ac.id/index.php/JBC
Penerbit: Poltekkes Kemenkes Palu

Prevalence and Risk Factor of Hepatitis B among Pregnant Women In Prof. Dr. W. Z. Johannes Hospital Kupang, East Nusa Tenggara, Indonesia

Marni Tangkelangi, Adrianus Ola Wuan, Yuanita Clara Luhi Roga Leli
Departement of Medical Laboratory Technology, Poltekkes Kemenkes Kupang, Kupang, Indonesia
Corresponding Author: marni.tangkelangi@gmail.com

ARTICLE INFO

Article History:

Received: 2023-09-09
Accepted: 2023-12-28
Published: 2023-12-31

Keywords:

pregnant women;
Hepatitis B;
risk factor;
Kupang City;

ABSTRACT

Introduction: Hepatitis B (HB) during pregnancy was a treating condition for both mother and fetus. Prevalence of Hepatitis B in Indonesia was 0,39 and Kupang City was 0,37 based on Riskesdas in 2018. **Purpose**: This study aims to measure the prevalence of hepatitis and its risk factors among pregnant women in Prof. Dr. W. Z. Johannes Hospital Kupang. **Methods**: This study was a descriptive qualitative research using cross sectional design, population was all pregnant women underwent HBsAg Rapid Test excluded HIV co-infection, the sample of this study was 345 pregnant women who visited the hospital during 2021 using constitutive sampling technique, prevalence of hepatitis was calculated and data obtained was analysed using chi-square and fisher exact test for the risk factor. **Results**: Prevalence of Hepatitis B were 19.7% (66 of 345). Risk factor of hepatitis B on this study was >1 sexual partner (p= 0,000, OR= 53,26), while age (p = 0,597), gestational age (p = 0,597), and parity (p = 0,329) were not the risk factors in this study. **Conclusion**: Prevalence of Hepatitis B among pregnant women was high, having >1 sexual partner was risk factor of pregnant women in Prof. Dr. W. Z. Johannes Hospital Kupang. It is recommended to encourage early detection and Hepatitis B vaccine on pregnant women to provide specific protection.

INTRODUCTION

Pregnancy is a term used to describe the development of the fetus in the womb, this development is divided into 3 stages called trimesters consisting of the first, second and third (ACOG committee, 2013; Spong, 2013). There are various worrying conditions in pregnancy, one of which is the threat of disease caused by hepatitis B virus infection which not only endangers pregnant women but also the fetus in her womb. The Indonesian government considers hepatitis B to be a serious problem that requires more attention especially for pregnant women, through the Minister of Health Regulation number 52 of 2017, triple elimination (HIV/AIDS, Syphilis and Hepatitis B) from mother to child is established, one of the programs is to require HBsAg examination during pregnancy with the aim of preventing transmission of hepatitis B from mother to baby (Peraturan Menteri Kesehatan Republik Indonesia Nomor 52 Tahun 2017 Tentang Eliminasi Penularan Human Deficiency Virus, Sifilis Dan Hepatitis B Dari Ibu Ke Anak, 2017).

In 2019 it is estimated that there are 296 million cases of hepatitis B in the world with 1.5 million additional cases each year and the number of deaths from this disease is predicted to be 820,000 deaths. Women who suffer from hepatitis B can transmit the virus to newborns during childbirth (Center for Disease Control and Prevention, 2022; World Health Organization (WHO), 2022). Based on the results of basic health research in 2018, the prevalence of hepatitis B in Indonesia was 0,39, while in the province of NTT was 0,37 and prevalence of Hepatitis B in Kupang City was 0,47 (Kementerian Kesehatan, 2021).

Research on the risk factors for the occurrence of hepatitis B in pregnant women in the Jakarta area in 2015 – 2016 identified the risk factors involved, including work in the formal sector, have had blood transfusions, have sex partners> 1, and live at home with Hepatitis B patients (Pratono, 2019), another study by Pither, et al. risk factors for hepatitis B in pregnant women in East Luwu district, namely education level, parity and partner sexual (Pither et al., 2021).

Hepatitis B virus can be transmitted through exposure to blood products and body fluids, one of which is through vertical transmission from mother to baby (Khalil et al., 2017; MacLachlan et al., 2015). Infants born to mothers with positive hepatitis B surface antigen (HBsAg) have a high risk of suffering from hepatitis B infection, especially in the first 5 years of life (Center for Disease Control and Prevention, 2022; World Health Organization (WHO), 2022). From these conditions can develop into chronic hepatitis B if without proper treatment around 25% of these babies can experience complications from hepatitis B such as liver failure, liver cancer and cirrhosis, hepatitis B virus carriers have a 100 times risk of developing hepatocellular carcinoma (Wong et al., 2014).

Hepatitis B medication on pregnancy must handle with many precaution, because the medication could gave side effect to the fetus, WHO already arranged guideline that include the recommendation for the antiviral prophylaxis in pregnant women as a prevention of vertical transmission from mother to baby (World Health Organization (WHO), 2020), although Hepatitis B was curable but there should be many aspect to consider for pregnant condition. The purpose of this research is to measure the prevalence of hepatitis B and its risk factors among pregnant women in Kupang City. There's a lack of study conducted to assessing hepatitis B prevalence among pregnant women in Kupang City also this study is more deep in finding the risk factor of Hepatitis spesifically on pregnant women in Kupang City which never done before or might have been done but unpublished, by understanding the magnitude of Hepatitis B cases in pregnant women and its risk factor could be a valuable information for the stake holders to take necessary policy to tackle this problem.

METHODS

This study was a descriptive qualitative study using cross-sectional design based on Hospital data collected during January – December 2021 (on covid-19 pandemic situation) data collected from patient medical record on Prof. Dr. W. Z. Johannes Kupang Hospital, we choose to collect data in a year to avoid duplication data. Population of this study were all pregnant women who underwent the HBsAg test (required test for all pregnant women due to triple elimination program by the government) in Prof. Dr. W. Z. Johannes Kupang Hospital as the referral government hospital in Kupang City, Sampling technique using consecutive sampling the sample size was 345 pregnant women, while pregnant women with HIV positive was excluded. HBsAg test performed by taking venous blood and trough centrifugation serum was obtained and serum was dripped onto HBsAg rapid test cassette and incubated for 5

minutes the double lines formed indicates the Hepatitis B positive, while single line meaning otherwise.

Variable on this study was sexual partner define as quantity of pregnant women sexual partner before and during pregnancy, age define as period of pregnant women life in years count since birth, gestational age is measure of the age of a pregnancy taken from the beginning of the woman's last menstrual period (LMP) and parity was the number of times a woman has given birth to a live neonate (any gestation) or at 24 weeks or more, regardless of whether the child was viable or non-viable (i.e. stillbirths). The information obtained was recorded into research form including all study variable, data collection held in hospital medical record unit with permission we access the pregnant women medical record data and recorded all data needed. Data collected was cleaned, coded, and uploaded into a computer using Statistical Package for the Social Sciences (SPSS) version 26 statistical software for analysis and interpretation. Descriptive values were expressed as the frequency and percentage while chi-square and fisher exact test was using to calculated the risk factors. This protocol was ethical approved by the ethical commission of Poltekkes Kemenkes Kupang number LB.02.03/1/0038/2022.

RESULTS

A total 345 pregnant women HBsAg testing data collected from medical record of Prof. Dr. W. Z. Johannes Kupang Hospital, and the respondent characteristic is described on table 1.

Table 1. Respondent's Characterictic of Pregnant Women In Prof. Dr. W. Z. Johannes Hospital Kupang, East Nusa Tenggara

Variables	n	%
Pregnant women's age		
Low risk age (≤35 yr)	288	83.5
High risk age (>35 yr)	57	16.5
Gestational Age		
Early preg. (<14 wks)	42	12.2
Late preg. (≥14 wks)	303	87.8
Sexual patner(s)		
1 person	333	96.5
>1 person	12	3.5
Parity		
≤3 times	329	95.4
>3 times	16	4.6
HBsAg Test Result		
Negative	277	80.3
Positive	68	19.7

Table 1 shows there is 68 from total 345 pregnant women who has a positive HBsAg result which mean they were expose or infected with hepatitis B virus, and it is calculate the prevalence of hepatitis B among pregnant women is 19.7% which consider high.

Table 2 shows the risk factor of Hepatitis B among pregnant women in Kupang City using non parametric test (chi-square and fisher exact), p-value shows that only sexual patners variable as the risk factor for hepatitis B among pregnant women in Kupang city (sig = 0.000; OR =53,26), while other variables like age, gestational age and parity is not the risk factors of hepatitis B among pregnant women.

Table 2. Risk Factors of Hepatitis B among Pregnant Women In Prof. Dr. W. Z. Johannes Hospital Kupang, East Nusa Tenggara

Variable	Hepatitis B				Sig	OR
	Neg		Pos			
	n	%	n	%		
Pregnant women's age						
Low risk age (≤35 yr)	229	79.5	59	20.5	0.471	0.73
High risk age (>35 yr)	48	84.2	9	15.8		
Gestational Age						
Early preg. (<14 wks)	35	83.3	7	16.7	0.682	1.26
Late preg. (≥14 wks)	242	79.9	61	20.1		
Sexual patner(s)						
1 person	276	82.9	57	17.1	0.000	53.26
>1 person	1	8.3	11	91.7		
Parity						
≤3 times	266	80.9	63	19.1	0.329	1.92
3 times	11	68.8	5	31.3		

DISCUSSION

This study found that most of pregnant women got the HBsAg test did not have high risk age (too young or too old), most of the pregnant women also have full term pregnancy (3rd trimester) which is safer to the deliver the baby, 96.5% pregnant women was having 1 sexual partner which consider at low risk of having communicable disease such as hepatitis B. the parity also dominated by normal parity as >3 times parity could put pregnant women in high risk of exposed to hepatitis b from the blood product, body fluid, any used delivery instrument or health facility contamination. This study found the prevalence of hepatitis b among pregnant women in Kupang city is consider high, this study was in line with of hepatitis among pregnant women in Jayapura and Sentani with prevalence 13% while the same study in Malang found prevalence is 8% (for anti-HBs positive) (Hasanah Syifa, 2018; Pangulu, 2018). While in other developing country the prevalence of hepatitis b among pregnant women was 6% in Ohana with prevalence 6%, 11.8% in Uganda, and 9.20% in Gambia (Antuamwine et al., 2022; Bayo et al., 2014; Bittaye et al., 2019). This finding shows that the hepatitis infection among pregnant women.

This finding indicates that prevalence of hepatitis B among pregnant women in Kupang city is higher than some reported prevalence in other region in Indonesia, this finding also higher than the national SIHEPI survey that conducted in 2018-2019 in 34 province in Indonesia which screened 1.643.204 pregnant women with HBsAg test and the result there were 30.965 (1,88%) positive infected with hepatitis b virus (Kementerian Kesehatan, 2019). Some of pregnant women with positive HBsAg result did not realize they got the disease because it is asymptomatic and most of them found the infection very late in the 3rd trimester of their pregnancy so the pregnant women did not having enough time to have proper treatment or medication, one of the confounding factor is the covid-19 outbreak that put the pregnant women in high risk of covid transmission that makes them afraid to visiting the healthcare for routine checkup and prefer to check up in private doctor practice which consider safer place.

The risk factor that associated with the hepatitis b among pregnant women in kupang city was having >1 sexual partners, this finding is in agreement with study conducted among pregnant women in DKI Jakarta that found that having >1 sexual partner is the risk factor of hepatitis B and pregnant women who have >1 sexual partner

having 21.4 times higher risk of hepatitis B (Pratono, 2019), the same finding was found in study done by Umare et al in east ethiopia also study by Eba et al in Nekemte town that concluded having multiple sexual partners was statistically associated with hepatitis B positivity (Eba et al., 2021; Umare et al., 2016). As one of sexual transmitted disease during sexual contact Hepatitis B Virus will migrate which increases with the duration of sexual activity and the number of sexual partners (Tesfu et al., 2023), moreover when it is unprotected and is done with multiple partners, the transmission rate will be increased (Alemu et al., 2020). The transmission of hepatitis B among pregnant women could be found from the sexual partners that might having connection to free sex, contact with body fluids such as blood, semen and vaginal mucus (Kenea & Lemessa, 2020). Study by Wakjira et al in 2022 found that mothers who has multiples sexual partners were around seven times more risk of having sero-positivity of HBsAg compared to those who had no multiples sexual partners (Wakjira et al., 2022)., while in contrary study in Makassar city in 2019 found sexual partner as protective factor from hepatitis b infection (Nurhidayati et al., 2019) this may happen because the sexual patners practicing safe sex e.g. using condom. Changes in sexual practice and behavior modification may therefore be an important step towards reduction of hepatitis B infection (Rabiu et al., 2010).

Other risk factor that assessed on this study were age, gestational age and parity, this study found those risk factor not significant associated with hepatitis B among pregnant women in kupang city, this finding has the same result with study done by Indriani and Anggraini on 2021 that the three risk factor did not associated with hepatitis B in pregnant women (Indriani & Anggraini, 2021), in other hand, study conducted by siwi ida et al in 2020 found that age, gestational age are the risk factor of hepatitis B on pregnant women.

This study also has limitations, such as the incomplete data that impact to the variety of variable that can be analysed, also the lack of hepatitis B vaccine history from pregnant mother that could be an impact factor to the prevalence of hepatitis B, we also found the data about household contact that might be another factor of hepatitis transmission.

CONCLUSION AND RECCOMENDATION

Conclusion of this prevalence of Hepatitis B among pregnant women in Kupang City was high, having more than one sexual partner was risk factor of pregnant women in Kupang City. It is recommended to encourage early detection of Hepatitis B on pregnancy. Health providers have to more proactive in screening process (HBsAg test on first visit to PHC), and providing a free vaccine on pregnant women to provide specific protection especially who have high risk.

ACKNOWLEDGMENTS

We would like to express our highest appreciation to the Director of Health Polytechnic of Kupang for giving us a chance to conduct our research. We acknowledge the Director of Prof. Dr. W. Z. Yohannes Kupang Hospital for their valuable cooperation during data collection. We would like to express our gratitude to all enumerators who participated in this study. We are also grateful to the Medical Laboratory Technology Department, Health Polytechnic of Kupang,for the facilitation and support for the study.

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