Incidence and Characteristics of Pregnant Women Who Suffer from Asymptomatic Bacteriuria in Dustira Hospital, Cimahi

Eka Noneng Nawangsih[1(✉)], Priatna Priatna[2], and Wisnu Yoga Pratama[3]

[1] Department of Microbiology, Faculty of Medicine, Universitas Jenderal Achmad Yani, Cimahi, Indonesia
eka.noneng@lecture.unjani.ac.id
[2] Department of Radiology, Faculty of Medicine, Universitas Jenderal Achmad Yani, Cimahi, Indonesia
[3] Bachelor of Medicine Study Program, Faculty of Medicine, Universitas Jenderal Achmad Yani, Cimahi, Indonesia

Abstract. Bacteriuria in pregnant women can be symptomatic or asymptomatic. The diagnosis of asymptomatic bacteriuria is established if there are $\geq 10^5$ CFU/ml of bacteria in the urine and there are no clinical symptoms. If untreated, can cause complications in pregnant women such as preterm birth, low birth weight (LBW), and even risk of infant mortality. The purpose of this study was to determine the incidence and characteristics of pregnant women suffering from asymptomatic bacteriuria at Obstetrics and Gynecology Polyclinic, Dustira Hospital, Cimahi. This research is a descriptive study using primary data. Subjects in this study were 35 pregnant women who came to check into Dustira Hospital, Obstetrics and Gynecology Polyclinic. The incidence of asymptomatic bacteriuria in pregnant women in Dustira Hospital in the period from February to March 2018 was 11.43%. The relatively high proportion of asymptomatic bacteriuria found in second trimester of pregnancy (5,71%) while in the first and third trimester of 2,85%. Based on parity, obtained the same amount between multiparous and primiparous, namely: 5,71%.

Keywords: Asymptomatic · Bacteriuria · Dustira Hospital · Pregnant

1 Introduction

Asymptomatic bacteriuria is the presence of microorganisms in the urine in the urinary tract which should be sterile and there are no clinical symptoms. Asymptomatic bacteria show positive results if there are $\geq 10^5$ CFU/ml units of bacterial colonies in urine samples. Asymptomatic bacteriuria often occurs in pregnant women [1]. During pregnancy there can be dilatation of the renal pelvis and ureter, and the pressure of the vesical urinaria anteriorly and superiorly due to uterine enlargement. This causes the containment of urine and the occurrence of vesicoureteral reflux which carries bacteria from vesica urinaria [2–4]. If Asymptomatic bacteriuria untreated, can cause complications such as

Y. Y. Kumala et al. (Eds.): ASCMF 2022, AHSR 53, pp. 37–40, 2023.
https://doi.org/10.2991/978-94-6463-060-2_7

preterm birth, low birth weight (LBW) and even the risk of infant mortality [5–7]. In pregnancy, the risk of asymptomatic bacteriuria is influenced by parity, economic status, and knowledge of genital hygiene. Based on data from the Cimahi Health Office, in 2016, 20% of 11,875 pregnant women in Cimahi City experienced complications during pregnancy [8]. Based on this, researchers were interested in examining the incidence of pregnant women suffering from asymptomatic bacteriuria which is one of the possible causes of complications when pregnancy. The purpose of this study was to determine the incidence and characteristics of pregnant women who suffer from asymptomatic bacteriuria as at the Obstetrics and Gynecology (Obgyn) Dustira Hospital, Cimahi, based on gestational age and parity.

2 Materials and Methods

This study is a descriptive study on the incidence rate and characteristics of pregnant women who suffer from asymptomatic bacteriuria in Polyclinic Obgyn at Level II Dustira Hospital, Cimahi. Sampling method by purposive sampling for bacteriuria screening. Samples came from pregnant women who came to check her pregnancy at Dustira Hospital's Obgyn policlinic in February to March 2018 who met the inclusion criteria. The number of samples is determined using formulas. Minimum sample count: 32 samples.

3 Results and Discussion

The diagnosis of asymptomatic bacteriuria is made by examining urine culture which is the gold standard (Table 1). Diagnosis of asymptomatic bacteriuria can be established if number of bacteria is found 10^5 CFU/ml in urine culture and does not cause clinical symptoms. Whereas bacteriuria with symptoms (pyelonephritis or cystitis) can be established if there are clinical symptoms, accompanied by the discovery of bacteria with a number of $\geq 10^3$ / CFU/ml [2, 3].

Pregnant women, there is an increase in the progesterone hormone. It will cause weakness of smooth muscles. Based on Table 2, decrease in ureteric peristalsis, increase in urine storage capacity, and decrease in urinary emptying ability. There is an effect of suppression of the uterus with increasing gestational age, causing the emergence of vesical urinaria anteriorly and superiorly. This causes frequent urinary stasis. In addition,

Table 1. The incidence of asymptomatic bacteriuria in pregnant women at Obstetrics and Gynecology Polyclinic, Dustira Hospital

Diagnosis	**f**	**%**
Negative bacteriuria	29	82,86
Symptomatic bacteriuria	2	5,71
Asymptomatic bacteriuria	4	11,43
Total	**35**	**100**

Table 2. Characteristics of patients based on trimester of pregnancy

Trimester	Diagnosis						Total	
	Negative bacteriuria		Symptomatic bacteriuria		Asymptomatic bacteriuria			
	f	%	f	%	f	%	f	%
1	9	25,71	1	2,85	1	2,85	11	31,41
2	7	20,00	1	2,85	2	5,71	10	28,56
3	13	37,14	0	0	1	2,85	14	39,99
Total	**29**	**82,85**	**2**	**5,7**	**4**	**11,41**	**35**	**100**

Table 3. Characteristics of pregnant women are based on parity

Parity	Diagnosis						Total	
	Negative bacteriuria		Symptomatic bacteriuria		Asymptomatic bacteriuria			
	f	%	f	%	f	%	f	%
Primipara	21	60,00	0	0	2	5,71	23	65,71
Multipara	8	22,86	2	5,71	2	5,71	12	34,28
Total	**29**	**100**	**2**	**5,71**	**4**	**11,42**	**35**	**100**

differences in pH and urine osmolality and glucosuria induced by pregnancy cause bacterial growth to occur more easily. The second trimester is the most likely to suffer from asymptomatic bacteriuria. In the first months of pregnancy there was a change in urine content in pregnant women which facilitated bacterial growth. In addition, in the second trimester, vesical urinary begins to be depressed by an enlarged uterus. Whereas in the third trimester the pressure on vesica urinary decreases, because the fetus has begun to descend into the pelvic cavity [9, 10].

Based on Table 3, the incidence of asymptomatic bacteriuria is more common in multipara. This is caused by the vulnerability of reproductive organs and frequent physiological changes. This causes muscle tone in the vesica urinary become weak and disrupt the process of emptying urine so that it is easier to occur bacteriuria.

4 Conclusion

The incidence of asymptomatic bacteriuria in pregnant women at Dustira Cimahi Hospital in the February-March 2018 period was 11.43%. The relatively high proportion of asymptomatic bacteriuria found in second trimester of pregnancy (5,71%) while in the first and third trimester of 2,85%. Based on parity, obtained the same amount between multiparous and primiparous, namely 5,71%.

References

1. F. Ismail, “Asymptomatic bacteriuria in pregnancy”, Best Practice & Research Clinical Obstetrics and Gynaecology, vol. 21, no. 3, pp. 439–450, 2007.
2. J. Schnarr and F. Smaill, “Asymptomatic bacteriuria and symptomatic urinary tract infections in pregnancy”, European Journal of Clinical Investigation, vol. 38, 2008.
3. J. Schnarr and F. Smaill, “Asymptomatic bacteriuria and symptomatic urinary tract infections in pregnancy”, ESCI, vol. 38, pp. 50-51, 2009.
4. J.E. Delzell and M.L. Lefevre, “Urinary Tract Infection During Pregnancy”, American Family Physician, vol. 61, no. 3, 2000.
5. M. Bolton, D.J. Jr. Horvath, B. Li, H. Cortado, D. Newsom, P. White, … and S.S. Justice, “Intrauterine growth restriction is a direct consequence of localized maternal uropathogenic Escherichia coli cystitis”, PLoS One, vol. 7, no. (3), p. e33897, 2012.
6. L.K. Millar and S.M. Cox, “Urinary tract infections complicating pregnancy”, Infect Dis Clin North Am., vol. 11, pp.13-26, 1997.
7. Y. Kusnawara, Hubungan Infeksi Saluran Kemih Dengan Partus Prematurus. Tesis, Semarang: Bagian Obstetri dan Ginekologi Fakultas Kedokteran UNDIP, 2011.
8. Dinas Kesehatan Provinsi Jawa Barat, Profil Kesehatan 2016. Bandung: Dinkes Jabar.
9. H.D. Isenberg, J.A. Washington II, A. Balows, “Sonnenwirth AC: Collection, handling and processing specimens”, In E.H. Lannette, A. Ballows, J.R. W.J. Hausler, and H.J. Shadomy, editors. Manual of clinical microbiology. 4th ed. Washington D.C.: American Society for Microbiology, 1985, pp. 73-97.
10. F.G. Cunningham, N.F. Gant, K.J. Leveno, L.C. Gilstrap, K. Hauth, and K.D. Wenstrom, “Urinary Tract Infection”, In: William’s Obstetrics. 22nd ed. New York: McGraw-Hill Companies, 2005, pp. 1095-1099.