Jurnal Kesehatan Ibu dan Anak
Vol.12, No.2, November 2018, pp. 113~118
ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)
DOI : 10.29238/kia.v12i2.153

PREVALENCE AND RISK FACTORS FOR POSTPARTUM ANEMIA

Ika Ratna Pratiwi[1], Sabar Santoso[2], Heni Puji Wahyuningsih[3]
[123]Department of Midwifery, Health Polytechnic Ministry of Health Yogyakarta, Indonesia

Article Info

Article history:

Received Nov 22th, 2018
Revised Des 30th, 2018
Accepted Des 31th, 2018

Keyword:

Pregnancy Anemia
Maternal Age
Parity
Type of Birth
Birth Weight

ABSTRACT

Anemia is a major global health problem, especially in developing countries, the prevalence of postpartum anemia is in the range of 50-80%. SDKI (2015) claimed the prevalence of anemia in Kulon Progo were 49% and prevalence of adolescent anemia were 29,95%. The prevalence of postpartum anemia has not been studied as extensively as pregnancy anemia. The aim of this study was to assess the factors related of postpartum anemia in of Wates Public Health Center working area. The method of this research used analitic observational research type. Subject of this research were postpartum mothers wich include in this research with consecutive sampling technique. A chi-square and a multivariate logistic regression linear model was apllied to analize the factors of postpartum anemia. 60% of mother had postpartum anemia. The risk factors of postpartum anemia were pregnancy anemia (RR:2,195;95%CI:1,369-3,518), maternal age (RR:1,894;95%CI:1,361-3,171), parity (RR:2,000;95%CI:1,020-3,922), type of birth (RR:2,195;95%CI:1,369-3,518), birth weight (RR:1,974;95%CI:1,281-3,044). The most strongly factors with postpartum anemia were pregnancy anemia and type of birth. Factors relating of postpartum anemia were pregnancy anemia, maternal age, parity, type of birth, and birth weight. The dominants factors were pregnancy anemia and type of birth. Health servicer should early screening to mother with factors of postpartum anemia to avoid postpartum anemia.

Corresponding Author:

Heni Puji Wahyuningsih
Department of Midwifery, Health Polytechnic Ministry of Health Yogyakarta,
Mangkuyudan Street, MJIII/ 304, Mantrijeron, Yogyakarta, Indonesia 55143. Telp (0274) 374331
Email: henipujiw@gmail.com

INTRODUCTION

Anemia is a major global health problem, especially in developing countries. WHO said that anemia was critical maternal problem in postpartum morbidity.[1] Prevalence of postpartum anemia is in the range of 50-80%.[6] Anemia caused decreased tiredness, breathlessness, palpitations, infections particularly in he urinary tract, reduced cognitive abilities, emotional instability and distress, and increases the risk of postpartum depression.[5,6] Most new mother recover from postpartum anemia during the weeks or months following delivery. However, when this recovery initiates under unfavourable haematological conditions, functional abnormalities can appear or worsen (symptoms of depression, fatigue, inability to breastfeed, etc). Given these potential consequences, we believe that postpartum anemia requaires more attention and quality in terms of its diagnosis and treatment.[5]

The prevalence of postpartum anemia has not been studied as extensively as prepartum anemia.[2] Data access of postpartum anemia in Indonesian still hard becaused limitedness of data. Postpartum anemia may explore with journal and research. However,

ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)

we may extrapolate form the prevalence of anemia in pregnant women to prevalence in postpartum women, assuming that figures may be even higher postpartum due to blood losses at delivery. Therefore, in many regions of the world, postpartum anemia is undoubtedly a very significant but partly unrecognized problem.[2]

Anemia postpartum was happened if haemoglobin levels less 11 g/dl and acute anemia if less than 8 g/dl[3]. Postpartum anemia id defined by a hemaoglobin levels <11 g/dl in 1 week of postpartum and <12 g/dl in 8 weeks of postpartum.[2,24] Haemoglobin, hematocrit, and count erythrocyte was variation in early puerperium sequents of fluctuations volume of blood, plasm, and red blood cells. This level is affected with maternal hidartion, volume of fluid that accepted in labour, and reduction of total blood volume from enhancement of blood volume levels during pregnancy. Blood loss for at least of two or four days in postpartum and be accompanied eith factors during pregnancy would effectiveless hematocrit.[16]

During pregnancy, occurred hipervolemia and hemodilation to stimulated of fluctuation in physiology of haemoglobin consentration, then reduction of hemodilution in haemoglobin during labour to postpartum. Hipervolemia in pregnancy would impact in 30% blood loss during labour, and will changes haematocrit rate in postpartum.[3]

Maternal age risk in less than 20 or more than 35 years old.[31] Therefore if women has pregnant and bear in age <20 or >35, that was included risk-pregnancy becaused in biologically, age of <20, reproduction function was unadequate, in age of >35, there many organ and body was decreased.

Parity was be potential factor caused anemia.[34] It caused in multiparous, utery tones was unefectively as before, that's induce failed compression of blood vessel in placenta impantation. In primiparous women, more of prolonged duration of the first and second stages of labour, and also to birth more likely ending as an instrumental birth with vacum and caesarean section is more happened in primiparous women.[29]

Multiple pregnancies, despite being a recognized risk factor of postpartum haemorrhage due uterine atony and could be due to the low number of women with multiple pregnancies who gave birth vaginally.[29] Therefore, haemorrhage during labour and post labour potentially involved postpartum anemia.[6] Duration of first and second stages of labour should be related of haemoglobin levels. When the longer the duration of first stage of labour >9 hours and >3 hours for the second stage of labour are higher the risk of anemia, but mainly in the severe anemia group. The longer duration of stages of labour consistent with former on haemorrhage.[29] Episiotomy were associated with postpartum anemia, with decreased haemorrhage.[29,30] Birth weight >3500 gram decreased uterine atony.[29]

High rate of prevalence of postpartum anemia in developed countries had effected in maternal and newborns live survival, but that not enough of promotive and preventive programs could reduce postpartum anemia, former studies have to known factors related postpartum anemia in Wates Public Health Center working area. Factors included pregnancy anemia, maternal ages, parity, multiple pregnancy, type of birth, duration stages of labour, episiotomy, and birth weight has been relating of postpartum anemia.

METHOD

An observational and analytical retrospective cohort study conducted in this study. Sampling technique used a consequtive sampling. This study was held in working area of Wates Public Health Center during Mei until June 2018. Data collected by door to door with measurment of haemoglobin levels and interview about anemia's factors. Secondary data collected by Mother and Child Health Book (KIA book) and medical record.

The reference population included the postpartum women that will enter the study during Mei until June 2018 in working area of Wates Public Health Center. Population total of postpartum women are 50. The women had complication during labour, had comordibities (hypertension, diabetes, heart, etc.), women with postpartum haemorrhage were excluded.

Haemoglobin levels were measurement with haemometer used peripheral blood sample. Form of database were used to be guide during interview included maternal age, parity, multiple pregnancy, type of birth, duration stages of labour, episiotomy, and birth weight. Pregnancy anemia was taken from KIA book and medical record. Data will be entry in table master.

This study started by taken care of study permit ethical clearance, National and Political Unity Agency of Yogyakarta (*Kesbangpol DIY*), and Integrated Investment and Service Office in Kulon Progo District. All permission gave to Wates Public Health Center officer. Data collected in registration book of Public Health Center and search the respondent's address. Respondents were accepted reasearch prosedures and we give independency to participate or not in the research. Respondent who sign the informed consent to take a peripheral blood sample to measurement the haemoglobin levels and get interview. Collected datas was entry in table master to analysis.

Computariszation was applied in analysis. A univariat data involved postpartum anemia proportionand characteristics of respondent about factors related of postpartum anemia. A bivariat analysis carried out by Chi Square test. A multivaiate analysis was done by logistic regression to get the dominant factors.

RESULTS

Table 1. Distriburion Frequency of Characteristic of Subject In Working Area of Public Health Center

	Postpartum anemia				
	N	**%**	**p-value**	**r**	**RR (95% CI)**
Pregnancy anemia					
Yes	14	35	0,006	0,442	2,195 (1,369-3,922)
No	26	65			
Maternal age					
<20 and >35	17	42,5	0,031	0,365	1,894 (1.361-3,171)
20-35	23	57,5			
Parity					
Multiparous	24	60	0,041	0,351	2,000 (1,020-3,922)
Primiparous	16	40			
Multiple pregnancy					
Yes	0	0			
No	40	100			
Type of birth					
Sectio Ceasarea	14	35	0,006	0,442	2,195 (1,020-3,922)
Vaginal birth	26	65			
Duration					
Risk	12	30	0,297	0,197	1,400 (0,871-2,251)
Not risk	28	70			
Episiotomy					
Yes	15	37,5	0,739	0,105	1,190 (0,723-1,960)
No	25	62,5			
Birth weight					
>3500 gram	12	30	0,012	0,390	1,974 (1,281-3,033)
≤3500 gram	28	70			

ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)

Table 2. Factors Associated with Postpartum Anemia

Variable	Postpartum Anemia			Logistic Regression		
	N	%	P value	RR	P value	95% CI
Pregnancy anemia	13	92,9	0,006	2,195	0,001	1,369-3,518
Maternal Age	14	82,4	0,031	1,894	0,006	1,361-3,171
Parity	18	75	0,041	2,000	0,009	1,020-3,922
Type of Birth	13	92,9	0,006	2,195	0,001	1,369-3,518
Birth Weight	11	91,7	0,012	1,974	0,003	1,281-3,044

DISCUSSION

During Mei until June 2018 we found 50 maternal postpartum. We included 40 postpartum maternal that qualified inclusion and exclussion. We found 60% women had postpartum anemia. Characteristics were pregnancy anemia, maternal age, parity, multiple pregnancy, type of birth, duration stages of labour, episiotomy, and birth weight.

Rate of respondents had pregnancy anemia and had postpartum anemia are 92%. Pregnancy anemia 2,195 of risk of postpartum anemia was compared by maternal without pregnancy anemia (RR 2,195). This study were in line with Xavier's study that pregnancy anemia are factors that related of postpartum anemia.[30] Butwick et al told that prepartum anemia or third trimesters of pregnancy are dominant factors caused postpartum anemia. During pregnancy were occurred hypervolemia and haemodilusion, effect to stimulating of haemoglobin consentrate's fluctuation, next it decreased haemodilusion in labours haemoglobin until postpartum. Hypervolemi in pregnancy occur blood loss 30% during labour, and will change haematocrit lavels in postpartum.[3]

Maternal age of <20 and >35 had 1,894 to be postpartum anemia compared with maternal ages 20-35 old (RR 1,894). It caused maternal age <20 that biologically unadequate in reproductive function, but in group of maternal age >35, many function of organ and body be decreased.[31] Kavitha (2011) said that adollences age group suspective to anemia compared adult age group caused unadeqaute nutrition.[32] Anna Cantlay (2015) mentioned that adolescent age are lean to had bad nutrition habits, the worries of addition body mass that increase notrition deficiency risk and anemia.[33] Supported by Suvi Leppahlati (2013) mentioned that adolescent group are decreased maternal anemia risk and premature delivery.[16] Butwick et al and Alvarez et al mentioned that age at risk (<20 and >35) are factors related of postpartum anemia.[3,29]

Multiparous had two times risk to be postpartum anemia compared primiparous (RR 2,000). Iyengar and Rakesh et al refered that multiparous was a factor of postpartum anemia. In multiparous, utery did not work as well as before, it partly due to failed of vassel compression in placenta implantation. It caused to increase incident of postpartum haemorrhage.[15,35] Uche et al and Hashim et al mentioned that parity was appears a factor for pregnancy anemia in last three monts.[36,37] Ebru et al was compared multiparous and grande multiparous was appears an an important factor for anemia.[31] Milman and Xavier et al mentioned multiparous was appears an an important factor for postpartum anemia.[6,30]

Alvarez et al mentioned that postpartum anemia was higher in primiparous. It may be partly due to higher incidence of excessive postpartum haemorrhage observed in primiparous women, possibly because of more prolonged durations of the first and second stages of labour, and also to birth more likely ending as an instrumental birth compared to multiparous women.[29]

Caesarean at risk of 2,195 times for postpartum anemia compared natural birth (RR 2,195). Haemorrhage during delivery and post delivery, it potential for postpartum anemia[6]. Butwick et al showed that women with caesarean was vulnerable for postpartum anemia, it caused increase postpartum haemorrhage compared natural birth.[3] Xavier

mentioned caesarean was an important factors for postpartum anemia with precentage 58,2% and natural birth in 37,2%.[30]

Duration stages of labour at risk 1,4 times for postpartum anemia (RR 1,4). Episiotomy at risk was 1,190 times to postpartum anemia (RR 1,190). Birth weight >3500 gram at risk 1,974 for postpartum anemia compared birth weight <3500 gram (RR 1,974). This result was agrees with Alvarez et al., mentioned that birth weight >3500 gram at risk for postpartum anemia two times compared normaly birth weight. It caused birth weight >3500 gram increased to atony uterine.[29] While, Urquizu et al., found did not significant both birth weight with incident of anemia.[30] The most dominant factors related postpartum anemias are pregnancy anemia and type of birth.

CONCLUSION

Postpartum anemia is a prevalent problem. The factors most associated postpartum anemia were preganancy anemia, maternal age, parity, type of birth, and birth weight. Optimization of patient's haemoglobin before delivery and screening for factors related anemia may reduce the incindence of postpartum anemia. Improving antenatal care services at health facilities are recommended preventions and interventions to reduce factors related postpartum anemia.

REFERENCES

1. World Health Organization. *Postnatal care on the mother and newborn*. (2014).
2. Milman, N. *Anemia — still a major health problem in many parts of the world*! 369–377 (2011). doi:10.1007/s00277-010-1144-5
3. Butwick, A. J., Walsh, E. M., Kuzniewicz, M., Li, S. X. & Escobar, G. J. *Patterns and predictors of severe postpartum anemia after cesarean section*. *Transfussion*, 1–9 (2016).
4. Garrido, C. M. *et al. Maternal anaemia after delivery : prevalence and risk factors Maternal anaemia after delivery : prevalence and risk factors*. *J. Obstet. Gynaecol. (Lahore)*.0, 1–5 (2017).
5. Milman, N. *Postpartum anemia I: definition, prevalence, causes, and consequences*. (2011).
6. Bergmann, R. L., Richter, R., Bergmann, K. E. & Dudenhausen, J. W. *Prevalence and risk factors for early postpartum anemia*. *Eur. J. Obstet. Gynecol.*150, 126–131 (2010).
7. Pergialiotis V, Vlachos D, Protopapas A, Pappa K, V. G. *Risk factors for severe perineal lacarations during childbirth*. *Int. J. Gynecol. Obstet.*125, 6–14 (2014).
8. Sumarna, Nursanti, I. & Mawarti, R. *Gambaran Kejadian Anemia pada Ibu Postpartum di RSUD Panembahan Senopati Bantul*. (2016).
9. Rakesh P, Gopichandran V, Jamkhandi D, Manjunath K, George K, P. J. *Determinants of postpartum anemia among women from a rural population in Southern India*. *Int J Womens Heal.*11 (6), 395–400 (2014).
10. World Health Organization. *Iron deficiency anaemia: assessment, prevalence and control: a guide for programme managers Geneva*. (2007).
11. Kreamer K, Z. M. *Nutritional anemia*. *Ger. sight life* (2007).
12. Milman N, Bergholt T, Byg KE, Eriksen L, H. A. *Reference intervals for haemoatological variables during normal pregnancy and postpartum in 434 healthy Danish wo*men. (2007).
13. Murray-Kolb LE, B. J. *Iron deficiency and child and maternal health*. *Am. J. Clin. Nutr.*89, 946S–950S (2009).

ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)

14. Barroso F, Allard S, Kahan BC, Connolly C, Smathurst H, Choo L, et al. *Prevalence of maternal anemia and its predictors: a multicentre study*. *Eur. J. Obstet. Gynecol. Reprod. Biol.*159, 99–105 (2011).
15. Parker JA, Barroso F, Standworth SJ, Spiby H, Hopewell S, Doree CJ, et al. *Gaps in the evidence for prevention and treatment of maternal anemia: review of systematic reviews*. *BMC Pregnancy Childbirth*12, 56 (2012).
16. Worwood M. *Estimation of body iron stores*. 499–528 (2012). doi:http://doi.org/10.1007/978-1-60327-485-2
17. Rubio-álvarez, A., Molina-alarcón, M. & Hernández-martínez, A. *Incidence of postpartum anaemia and risk factors associated with vaginal birth*. *Women and Birth* (2017). doi:10.1016/j.wombi.2017.09.020
18. Xavier, U. i B., Monica, R. C., Fernandez, A. G. & y Emilio, P. P. *Anemia en el Embarazo y el Posparto Inmediato. Prevalencia y Factores de Riesgo*. *G Model MEDCLI-3535* 1–7 (2016). doi:10.1016/j.medcli.2016.01.029
19. Kavak, E. Ç. & Kavak, S. B. *The association between anemia prevalence , maternal age and parity in term pregnancies in our city*. doi:10.2399/prn.17.0251002
20. Kavitha, N. (Indian I. of H. M. R. S. P. *Is Young Maternal Age a Risk Factor for Sexually Transmitted Diseases and Anemia in Indian? An Examination in Urban and Rural Areas*. *J. Health Manag.*13(3), 279–300 (2011).
21. Cantlay, A. *Managing Teenage Pregnancy*. *InnovAiT*8(9), 524–530 (2015).
22. Al-farsi, Y. M., Brooks, D. R., Werler, M. M., Cabral, H. J. & Al-shafei, M. A. *Effect of high parity on occurrence of anemia in pregnancy : a cohort study*. *BMC Pregnancy Childbirth*11, 7 (2011).
23. Iyengar, K. *Early Postpartum Maternal Morbidity among Rural Women of Rajasthan India: A Community-based Study*. 30, 213–225 (2012).
24. Eo, U. *et al. Anemia in pregnancy : associations with parity, abortions and child spacing in primary healthcare clinic attendees in Trinidad and Tobago*. 66–70 (2010).
25. Hashim, N., Farooqi, M., Naqvi, S. & Jaffery, H. F. *Moderate to severe during pregnancy*. *Prof. Med. J.*21(2), 247–252 (2014).
26. Varney, H. et al. *Buku Ajar Asuhan Kebidanan*. (EGC, 2008).
27. Manuaba, C. *Gawat darurat obstetri ginekologi dan sosial untuk profesi bidan*. (2008).
28. Pallasmaa, N. *Cesarean Section - Short Term Maternal Complication*. (2014).
29. RCOG. *Information for you Heavy bleeding after birth (postpartum haemorrhage) Who is this information for ?* 1–6 (2016).
30. Jardine, J. E., Law, P., Hogg, M. & Murphy, D. *Haemorrhage at caesarean section : a framework for prevention and research*. 28, 492–498 (2016).