The Comparison of Edinburgh Postnatal Depression Scale (EPDS) Depression Score in Normal and Caesarean Section Delivery

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Abstract: Depression is one of the leading causes of disability in the world, including perinatal period which can affect both mother and babies. Type of delivery is still controversial risk factor for postpartum depression– which detected using Edinburgh Postnatal Depression Scale (EPDS). This study was aimed to find the relationship between type of delivery and postpartum depression. The case-control study of normal delivery and caesarean section mothers was conducted at Sundari Hospital, Medan, in July 2019. Postpartum depression was assessed using standardized EPDS. Subject characteristic, type of delivery, EPDS scores were obtained and analyzed using SPSS program. A total of 35 subjects in each group, 44.29% of subjects aged 26–30 years old and have 14 subjects with EPDS score >13, the most common depression symptoms including feeling sad (85.71%), feeling anxious (71.43%), low self-esteem (64.29%), feeling difficult to be close with baby (57.14%). The prevalence of postpartum depression was higher in caesarean section subjects (31.4%) compared to normal delivery (8.6%) (p = 0.034). Caesarean section delivery is the risk factor for postpartum depression, probably due to maternal psychological (worries, fears), biological (higher cortisol level, and the influence of anesthesia), and/or sociocultural factors. In conclusion, caesarean section deliveries are more at risk for postpartum depression.

Keywords: postpartum depression, Edinburgh Postnatal Depression Scale (EPDS), normal delivery, caesarean section

I. INTRODUCTION

Depression is one of the leading causes of disability in the world, including perinatal period which can affect both mother and babies.[1,2] Depression is one of the most common disorders in women during the perinatal period.[3] In addition, antenatal depression is also associated with a series of poor outcomes for the baby, such as an increased risk of preterm birth, low birth weight, intrauterine growth disorders, emotional and behavioral problems, cognitive impairment, and potential depression.[4] There are several risk factors that can increase risk of depression during pregnancy such of depression history, low socioeconomic status, young-aged mother, living alone, miscarriage history, neglected pregnancy, large number of children, and lack of social support.[5]

It is necessary to assess the state of maternal depression using a score that can assist in determining the severity of depression experienced by the mother, it is named the Edinburgh postnatal depression scale (EPDS) which is one method for detecting postpartum depression.[6] Based on the results of the Indonesian Demographic and Health Survey, the cesarean section rate in 1997 was around 4.3% of the total deliveries. It increased to 22.8% in 2007.[7] Along with the development of technology and various complications in pregnancy, the incidence of cesarean delivery is increasing, which has made this as health problem in the world.[8]

II. RESEARCH METHODOLOGY

This observational analytic study with a case control design has been held in Sundari hospital, Medan. All women went through normal labor as well as caesarean section with registry date started since July 2019 were included in this study. While depression, anxiety, psychosis known prior to pregnancy, and neurological disease associated with psychological symptoms were listed as exclusion criteria.

As much as 35 patients were obtained using consecutive sampling in this study. We collected data including age, educational level, economic status, type of delivery and depression level. We are using the Edinburgh postnatal depression scale (EPDS) in measuring the depression level.

Bivariate analysis was conducted to see the relationship between type of delivery and the incidence of postpartum depression. To analyze the data, descriptive and inferential statistical techniques were used with the help of the *Statistical Package for the Social Sciences* (SPSS) program. As an inferential statistical technique the Chi-square test was used. When the conditions to carry out the qui-square test were not satisfactory, the Fisher exact test will be carried out.

III. RESULTS AND DISCUSSION

Seventy patients with normal delivery and cesarean section at Sundari Hospital Medan since July 2019 until the sample was fulfilled, were obtained in this study. Most of the patients aged 26-30 years old (31 people, 44.29%). Most of them graduated from Junior High School (24 people, 34.29%). The majority of subjects have family incomes above the regional minimum wage (RMW) of Medan City per month (46 people, 65.7%). The dominant study subjects had term gestational age (61 people, 87.14%). Most of the subjects were also multiparous (52 people, 74.29%).

Table 1. Baseline characteristics

Variable	Frequency	Percentage
Age (years old)		
< 20	6	8.57
21–25	26	37.14
26–30	31	44.29
>30	7	10
Maternal education level		
Elementary school	15	21.43
Junior high school	24	34.29
Senior high school	21	30
Bachelor	10	14.28
Regional minimum wage (RMW)		
< RMW	24	34.29
> RMW	46	65.7
Gestational age		
Aterm	61	87.14
Preterm	9	12.86
Parity		
Primipara	18	25.71
Multiparous	52	74.29

Fourteen subjects with EPDS scores > 13 were interviewed to find out the symptoms of postpartum depression. The distribution of postpartum depression symptoms is shown in Table 2.

Table 2 Frequency distribution of postpartum depression symptoms

Variable	Frequency	Percentage
Feeling sad	12	85.71
Anxious	10	71.43
Sleep difficulty	7	50
Lack of emotional intimacy with their babies	8	57.14
Low self-esteem	9	64.29
Lack of energy	6	42.86
Irritability	5	35.71
Difficulty in concentrating	7	50
No appetite	6	42.86

The most frequent symptom of postpartum depression is feeling sad (12 people, 85.71%). Statistical analysis showed p =0.034 concluding that there was a significant relationship with the incidence of postpartum depression statistically (Table 3).

Table 3. Correlation between type of delivery and incidence of postpartum depression

Variable		*Edinburgh Postnatal Depression Scale* (EPDS)		Total	p Value
		13–30	<13		
Type of delivery	Vaginal delivery	3 (8.6%)	32 (91.4%)	35 (50%)	0.034
	Cesarian delivery	11 (31.4%)	24 (68.6%)	35 (50%)	

Postpartum depression is one of the agonizing health problems. The prevalence of postpartum depression ranges from 7.6% to 39% in various regions of the world and differs according to the population being tested and the screening tool used.
This concern about postpartum depression is caused by the long-term effects on families and children. Family relationships are often disturbed. Women with postpartum depression also tend to stop breastfeeding and compromise children's cognitive development due to impaired maternal-child interactions. Therefore, it is important to know the risk factors of postpartum depression. This study was conducted to determine whether the type of delivery is associated with postpartum depression.
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This concern about postpartum depression is caused by the long-term effects on families and children. Family relationships are often disturbed.[13] Women with postpartum depression also tend to stop breastfeeding and children's cognitive development due to impaired maternal-child interactions.[14,15] Therefore, it is important to know the risk factors of postpartum depression. This study was conducted to determine whether the type of delivery is associated with postpartum depression.

This study was followed by 70 research subjects, with the dominant characteristics of 26–30 years old, the last education was junior high school, income above the regional minimum wage, term conditions, and multipara. Symptoms of postpartum depression experienced include feeling sad, anxious, difficult to sleep, low emotional attachment to their babies, low self-esteem, lack of energy, irritability, difficulty concentrating, and no appetite.

From this study, we obtained 14 (20%) study subjects with EPDS values > 13. A total of 8.6% of patients with vaginal delivery experienced postpartum depression, and 31.4% of patients with cesarean section experienced postpartum depression, with Fisher's exact test showing p value of 0.034, which indicates a significant relationship between the type of delivery and the incidence of postpartum depression.

The results of this study are similar to those of Yang et al who reported that the risk of postpartum depression was lower in mothers with normal vaginal deliveries and those with instruments compared to emergency cesarean sections. It is said that the reason for this relationship is because cesarean section is accompanied by higher rates of rehospitalization, resulting in more psychological problems.[16]

Mahishale and Bhatt proposed that postpartum depression is related to the mode of delivery. Subjects with cesarean section showed a greater susceptibility to depression than vaginal delivery due to several reasons expressed by mothers such as the desire for a natural birth process, pain in the suture area, problems with food consumption.[17]

Torkan et al studied the quality of life after delivery and showed that EPDS scores were higher in the cesarean section group at 6–8 weeks postpartum and that the group was significantly more prone to depression than the vaginal group.[18]
Several studies have proposed mechanisms that could explain these findings. During cesarean section, the hormone cortisol is produced. Surgical stress-induced high cortisol is associated with postpartum depression which may occur by lowering 5-HT in the brain with a predisposition to depression in subjects.[19-21]

In cesarean section performed as an emergency, general anesthesia is usually the choice. It can also promote depression through several biochemical mechanisms at the molecular level. There is evidence that these anesthetics can inhibit 5-HT uptake, with thiopentone decreasing serotonergic, dopaminergic, and noradrenergic synaptic transmission. In addition, nitrogen oxides can interfere with the synthesis of S-adenosyl methionine and monoamines. The effect of barbiturates and benzodiazepines in increasing GABAergic transmission is well known and it is possible that these drugs may contribute to depression.
In addition, a woman may feel dissatisfied or disappointed with a cesarean section. This is related to sociocultural beliefs. After cesarean section, many women have negative feelings such as decreased self-confidence, feelings of failure, and feelings of loss of control or disappointment.[22]

Wound care, longer postpartum recovery, and a non-cooperative environment can also increase the risk of postpartum depression. Preterm cesarean section can also increase the mother's concern that her child will need incubation due to prematurity, and be an additional contributing factor to the development of postpartum depression.[16]
The results of this study are also in line with the research of Sarah et al which showed the overall prevalence of postpartum depression was 33.4%, of which 13.8% were cases of emergency cesarean section, eight percent were elective cesarean sections, and 7.2% were normal vaginal deliveries.[23]

Dolatian et al reported the prevalence of postpartum depression of 20.3% with 13.6% of cases with vaginal delivery, and 27.6% in the cesarean section group.[24] However, the results of this study contradict the Iranian study conducted by Sadat et al.[25] who failed to prove the relationship between the type of delivery and the incidence of postpartum depression. Similar findings were also found by Carter et al.[26] However, methodological and sociodemographic differences between related populations may be the reason behind the variation in the findings of this study.

Adam et al investigated the correlation between type of delivery and maternal distress and how it changes throughout pregnancy and the postpartum period using the Hopkins Symptom Checklist- 8 (SCL- 8) and concluded that type of delivery was not associated with postpartum distress. However, the measuring instrument used has not been specifically validated for the use of assessment of distress during pregnancy and the postpartum period.[27]

However, this study has a weakness, namely data collection by interview without follow-up. Further research is needed with a better design and approach, such as a larger sample size, multicentered research, face-to-face interviews, or a longer follow-up range.

IV. Conclusion

We found that majority of the patients aged 26-30 years old, with last education is junior high school, income is above the regional minimum wage, aterm pregnancy, and multipara. Symptoms of postpartum depression include feeling sad, anxious, sleep difficulty, lack of emotional intimacy with their babies, low self-esteem, lack of energy, irritability, difficulties in concentrating, and no appetite. There is a relationship between type of delivery and the incidence of postpartum depression, with cesarean delivery has more risk at causing depression in postpartum women.

REFERENCES

1. Wang J, Wu X, Lai W, et al. Prevalence of depression and depressive symptoms among outpatients: a systematic review and meta-analysis. BMJ Open. 2017;7:e017173.
2. GBD 2015 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the global burden of disease study 2015. Lancet. 2016;388:1545–602.
3. Howard LM, Molyneaux E, Dennis CL, Rochat T, Stein A, Milgrom J. Nonpsychotic mental disorders in the perinatal period. Lancet. 2014;384:1775–88.
4. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. Lancet. 2014;384:1800–19.
5. Aktas S, Calik KY. Factors affecting depression during pregnancy and the correlation between social support and pregnancy depression. Iran Red Crescent Med J. 2015;17(9):e16640.
6. Rubertsson C, Börjesson K, Berglund A, Josefsson A, Sydsjö G. The Swedish validation of Edinburgh Postnatal Depression Scale (EPDS) during pregnancy. Nord J Psychiatry. 2011;65(6):414–8.
7. Hadijanto B. Perdarahan pada kehamilan muda. Dalam: Sarwono Prawirohardjo. Ilmu Kandungan. Edisi ke-4. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo; 2009. p. 460–73.
8. Irbah J, Surya IGNHW. Karakteristik persalinan spontan pervaginam pada kehamilan dengan bekas seksio sesarea di RSUP Sanglah Denpasar periode Januari 2014–Desember 2014. E-J. 2019;8(2):1–7.
9. Sword W, Landy CK, Thabane L, Watt S, Krueger P, Farine D, et al. Is mode of delivery associated with postpartum depression at 6 weeks: a prospective cohort study. BJOG. 2011;118(8):966–77.
10. Breese McCoy SJ, Beal JN, Saunders B, Hill EN, Payton ME, Watson GH. Risk factors for postpartum depression: a retrospective investigation. J Reprod Med. 2008;53(3):166–70.
11. Chaaya M, Campbell OMR, El Kak F, Shaar D, Harb H, Kaddour A. Postpartum depression: prevalence and determinants in Lebanon. Arch Womens Ment Health. 2002;5(2):65–72.
12. Gonidakis F, Rabavilas AD, Varsou E, Kreatsas G, Christodoulou GN. A 6-month study of postpartum depression and related factors in Athens Greece. Compr Psychiatry. 2008;49(3):275–82.
13. Zelkowitz P, Milet TH. The course of postpartum psychiatric disorders in women and their partners. J Nerv Ment Dis. 2001;189(9):575–82.
14. Dennis CL and McQueen K. The relationship between infant-feeding outcomes and postpartum depression: a qualitative systematic review. Pediatrics. 2009;123(4):e736–51.
15. Carter AS, Garrity-Rokous FE, Chazan-Cohen R, Little C, Briggs-GowanMG. Maternal depression and comorbidity: predicting early parenting, attachment security, and toddler social-emotional problems and competencies. J Am Acad Child Psy. 2001;40(1):18–26.
16. Yang SN, Shen LJ, Ping T, Wang YC, Chien CW. The delivery mode and seasonal variation are associated with the development of postpartum depression. J Affect Disord. 2011;132:158–64.
17. Mahishale AV, Bhatt JA. Comparison of level of depression among mothers with lower segment cesarean section and vaginal delivery: A cross-sectional study. J Sci Soc. 2017;44:15–9.
18. Torkan B, Parsay S, Lamieian M, Kazemnezhad A, Montazeri A. Comparative analysis of life quality in mothers after cesarean section and normal vaginal delivery. Iran J Nurs Midwif Res. 2008;12:1.
19. Dinan TG. Glucocorticoids and the genesis of depressive illness. A psychobiological model. Br J Psychiatry. 1994;164(3):365–71.
20. Edwards DR, Porter SA, Stein GS. A pilot study of postnatal depression following caesarean section using two retrospective self-rating instruments. J Psychosom Res. 1994;38(2):111–7.
21. Meky HK, Shaaban MM, Ahmed MR, Mohammed TY. Prevalence of postpartum depression regarding mode of delivery: a cross-sectional study. J Matern Fetal Neonatal Med. 2019:1–8.
22. Jukelevics N. Understanding the dangers of cesarean birth. Westport (CT): Praeger Publishers; 2008.
23. Sarah SB, Forozan SP, Leila D. The relationship between model of delivery and postpartum depression. Ann Trop Med Public Health. 2017;10(4): 874–7.
24. Dolatian M, Maziar P, Alavimajd H, Yazdjerdi M. The relationship between mode of delivery and postpartum depression. J Reprod Fertil. 2006;28:260–8.
25. Sadat Z, Atrian MK, Alavi NM, Abbaszadeh F, Karimian Z, Taherian A. Effect of mode of delivery on postpartum depression in Iranian women. J Obstet Gynaecol Res. 2014;40(1):172–7.
26. Carter FA, Frampton CM, Mulder RT. Cesarean section and postpartum depression: a review of the evidence examining the link. Psychosom Med. 2006;68(2):321–30.
27. Adams SS, Eberhard- Gran M, Sandvik ÅR, Eskild A. Mode of delivery and postpartum emotional distress: A cohort study of 55,814 women. BJOG. 2012;119:298–305