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Effect of Painless Labor on Postpartum Depression

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ABSTRACT

Aims Postpartum depression is a common event after delivery. Among some possible causes, pain is an important contributing factor which can play role in increasing psychiatric disease. The aim of the present study was to assess the effect of neuraxial analgesia methods on reducing incidence of postpartum depression.

Materials & Methods 280 pregnant women (140 cases, 140 controls) without depression history who referred for vaginal delivery in the maternity ward of Taleghani teaching hospital, from February 2016 until February 2017 were participated in this randomized clinical trial. Samples were selected by random sampling method. Depression risk was assessed by Edinburgh Postnatal Depression Scale (EPDS) and the pain was measured by Visual Analogue Scale (VAS). Data were analyzed by SPSS 22 using Mann-whitney test and independent t-test for comparing of quantitative mean values. The association between qualitative variables was assessed by Chi square and exact Fisher tests.

Findings Postpartum depression occurred in the painless delivery group and natural delivery group. There was statistically significant difference between them (p=0.04). It means that depression rate in painless delivery group was lower than natural delivery group. High Edinburg score was associated with high risk of depression.

Conclusion Postpartum depression in women with painless delivery is lower comparison to women with natural delivery.

Keywords Postpartum Depression; Pregnancy; Pain; Labor; Delivery

CITATION LINKS

[1] Epidural labor analgesia is associated with a decreased risk of postpartum depression: a prospective cohort study [2] Predictors of postpartum depression: Prospective study of 264 women followed during pregnancy and postpartum [3] Perinatal depression: Prevalence, screening accuracy, and screening outcomes [4] Psychiatric symptoms following attempted natural childbirth [5] The myth of painless childbirth (the John J. Bonica lecture) [6] The nature and consequences of childbirth pain [7] Labour pain as a model of acute pain [8] Childbirth pain and postpartum depression [9] Association between the intensity of childbirth pain and the intensity of postpartum blues [10] Severity of acute pain after childbirth, but not type of delivery, predicts persistent pain and postpartum depression [11] The fear-avoidance model of musculoskeletal pain: current state of scientific evidence [12] Methods to identify postnatal depression in primary care: an integrated evidence synthesis and value of information analysis [13] Clinically significant changes in pain along the visual analog scale [14] Depressed mood, anxiety, and the use of labor analgesia [15] Factors associated with postpartum depressive symptomatology in Brazil: the Birth in Brazil national research study, 2011/2012 [16] The Connections of Pregnancy-, Delivery-, and Infant-Related Risk Factors and Negative Life Events on Postpartum Depression and Their Role in First and Recurrent Depression [17] Pain Management During Labor Part 2: Techniques for Labor Analgesia [18] A negative birth experience: prevalence and risk factors in a national sample [19] Birth place preferences and women's expectations and experiences regarding duration and pain of labor [20] Depressive symptoms and symptoms of post-traumatic stress disorder in women after childbirth [21] Pain relief during childbirth: Efficacy and safety of prolonging labour-analgesia with morphine directly into the lumbar cerebro-spinal-fluid (CSF) [22] Neoadjuvant chemotherapy for locally advanced ... [23] Labor Epidural Analgesia and Postpartum Depression [24] Childbirth and the development of acute trauma symptoms: incidence and contributing factors

Introduction

Postpartum depression is a form of clinical depression which influences women's life by unknown causes. It occurs after childbirth and involves symptoms such as depressed mood, insomnia and hypersomnia, weight gain or loss, lack of psychomotor integrity, failure of concentration and thinks of suicide [1]. Meta-analysis estimated the prevalence of postpartum depression as 13% [2]. In other literature, prevalence of major depression estimates ranged from 3.1% to 4.9% at different times during pregnancy and 1.0-5.9% at different times during the first postpartum year, whereas prevalence of major and minor depression was estimated from 8.5-11.0% at different times during pregnancy and 6.5-12.9% at different times during the first year postpartum [3].

Natural delivery is increasingly popular, but it has some adverse effects after birth [4]. Labor is extremely painful and has some consequences on safety of delivery [5]. For most women, childbirth is associated with severe pain [6], which behaves as acute pain [7]. But severe acute pain can be followed by chronic pain and postpartum depression [8]. The association between labor pain and postpartum depression intensity was confirmed [9]. Severity of acute childbirth pain can predict morbidities after delivery, which pain should be assessed and treated [10].

It is not surprising that effective factors on mother morbidity after delivery such as depression were poorly studied [11]. After publication of "painless childbirth" by Lamaze and "birth without violence" by Ley-boyer in 1975, pregnant mothers attend to delivery without pain [11]. In Ding *et al*. study, epidural labor analgesia was associated with lower depression rate with lower depressive score in Edinburgh Postnatal Depression Scale (EPDS) [1].

The aim of the present study was to assess the effect of neuraxial analgesia methods on reducing incidence of postpartum depression.

Materials and Methods

This randomized clinical trial (IRCT2016010325821N1) was conducted among mothers who referred for vaginal delivery in the maternity ward of Taleghani teaching Hospital, from February 2016 to February 2017. The sample size was determined by formula Z as 280 participants (140 cases, 140 controls) using random sampling method. Inclusion criteria were mothers who referred for vaginal delivery with cephalic position of fetus and writing ability. Mothers with psychotic disorder, previous mood disorder, patient receiving drug with effect on mood and contraindications of epidural excluded from study. All advantages (e.g. lower pain) and disadvantages (epidural analgesia adverse effects, prolonged labor, possibly lower Apgar score) were explained to mothers and their husbands, finally they decided for painless labor. Informed, written consents were received from all patients involved in the study.

Baseline demographic data (i.e. education level, socioeconomic level, frequency of pregnancy) were collected. Intrapartum data (i.e. epidural analgesia, visual analog score and adverse effects of neuraxial analgesia) and immediately after birth, baby gender and satisfaction of painless labor were recorded. Depression risk was assessed by Edinburgh Postnatal Depression Scale (EPDS) in parturient who delivered by neuraxial anesthesia or painless natural labor during 40 first days after delivery.

Mothers were classified to two groups based on implicating factors labor duration such as parity, age, and weight, by consultation with gynecologist. When gynecologist considered appropriate condition for natural labor, we initiated analgesic process during active labor phase (after 4cm dilatation). Depending on mother condition, we determined medical painless labor neuraxial approaches. In multipar women during active phase, we used only spinal approaches. In spinal methods, 25 to 50μg Fentanyl and 2.5mg Bupivacaine were used. Adding 2.5mg Bupivacaine to intrathecal opioids can increase analgesic quality and duration. We used combined epidural-spinal approach or continuous epidural catheter. Then, patient vital sign and fetus heart rate were monitored in regular intervals. After entry point to active labor, we desensitized needle insertion place by 2 to 3ml Lidocaine 2%, then epidural needle (18 gauges) was inserted by loss of resistance technique. After injection of test dose (3ml Lidocaine 1.5%), 8-10ml Bupivacaine 0.0625% with 50μg Fentanyl were administered. Then, mother lied in supine position.

Perquisites before Edinburg test include answer to all parameters of questionnaire. Mother must answer to all questions without helping anybody. This questionnaire was regulated by Cox *et al*. in 1987, composed of 10 short questions and any of them had 4 options. However, any response based on severity constituted 0 to 3 scores. Scoring in questions 1, 2 and 4 were 0 to 3 and others were 3 to 0. With accumulation of scores, total score was calculated. Then, patients were classified two groups: depressed (EPDS≥10) and non-depressed (EPDS<10). In this study, cut off point was described 10 for healthy persons and patients with impaired mental status was 12 or more [12].

The pain was evaluated by Visual Analogue Scale (VAS) as a single vertical mark on a 100mm VAS with label "no pain" at the far left and "most pain possible" at the far right [13].

Data were analyzed by SPSS 22 using Mann-Whitney test and independent t-test for comparing of quantitative mean values. The association between qualitative variables was assessed by Chi-square and exact Fisher tests.

Findings

280 pregnant women with normal history of pregnancy enrolled in the study. There was no significant difference based on demographic variables between case and control groups (p>0.05; Table 1).

Epidural analgesia was performed in 57 cases (40.7%), spinal anesthesia in 50 cases (35.7%) and combined spinal-epidural anesthesia in 33 cases (23.6%).

The mean of VAS score was similar between two groups before start of analgesic approaches. After conduction of analgesic methods, the mean of VAS score in case group was lower than control group (p<0.001; Table 2).

Satisfaction levels were as follows: excellent (68.6%), very good (17.1%), good (10.7%) and undesired (3.6%). There was statistically significant difference in Edinburgh test results between two groups based on severity of pain (p=0.04), it means that depression rate in painless delivery group was lower than natural delivery group (Table 3).

Table 1) Distribution of frequency of demographic variables in studied groups (n=140 in each group; the numbers in parentheses are percentage)

Variables	Case group	Control group	p-value
Education			
Under high school	25 (17.9)	20 (14.3)	
High school	74 (52.9)	82 (58.6)	0.583
University	41 (29.3)	38 (27.1)	
Work			
Student	2 (1.4)	5 (3.6)	
Housewife	127 (90.7)	129 (92.1)	1.00
House working	2 (1.4)	1 (0.7)	
Employee	9 (6.4)	5 (3.6)	
Home			
Personal	56 (40.0)	50 (35.7)	
Leased	47 (33.6)	50 (35.7)	0.760
Family	37 (26.4)	40 (28.6)	
Financial status			
Good	30 (21.4)	20 (14.3)	
Average	101 (72.1)	110 (78.6)	1.00
Bad	9 (6.4)	10 (7.1)	
Parity			
Nulliparity	75 (53.6)	77 (55.0)	
Gravid 2	52 (37.1)	45 (32.1)	0.512
Gravid 3 or more	13 (9.13)	18 (12.9)	
Delivery number			
One	84 (60.0)	79 (56.4)	
Tow	51 (36.4)	56 (40.0)	0.824
Three	5 (3.6)	5 (3.6)	

Table 2) The mean of BMI and VAS score in two groups

Variables	Case group	Control group	p-value
Height (cm)	165.44±7.40	164.45±8.20	0.290
Weight (Kg)	85.67±5.60	86.76±6.80	0.144
BMI (Kg/m²)	30.95±4.30	31.76±4.80	0.138
VAS			
pre	9.28±7.34	9.19±8.53	0.510
post	1.05±0.78	6.85±3.54	<0.001

Table 3) Distribution of frequency of side effects in studied groups (n=140 in each group; the numbers in parentheses are percentage)

Variables	Case group	Control group	p-value
Gender of newborn			
Male	79 (56.4)	75 (53.6)	0.631
Female	61 (43.6)	65 (46.4)	
Hypotension			
Yes	1 (0.7)	4 (2.9)	0.370
No	139 (99.3)	136 (97.1)	
Purities			
Yes	12 (8.6)	10 (7.1)	0.657
No	128 (91.4)	130 (92.9)	
Nausea			
Yes	6 (4.3)	11 (7.9)	0.211
No	134 (95.7)	129 (92.1)	
Back age			
Yes	2 (1.4)	2 (1.4)	1.00
No	138 (98.6)	138 (98.6)	
Urinary retention			
No	59 (100)	55 (100)	---
Headache			
Yes	0	4(2.9)	0.112
No	140 (100)	136 (97.1)	
FHR changing			
No	140 (100)	140 (100)	---
Confusion			
Yes	1 (0.7)	9 (6.4)	0.019
No	139 (99.3)	131 (93.6)	
Satisfaction			
Excellent	96 (68.6)	98 (70.0)	0.985
Very good	24 (17.1)	23 (16.4)	
Good	15 (10.7)	13 (9.3)	
No satisfaction	5 (3.6)	6 (4.3)	
Gravid			
1	94 (67.1)	96 (68.6)	0.985
2	37 (26.4)	37 (26.4)	
3	6 (4.3)	5 (3.6)	
4	3 (2.1)	2 (1.4)	
Opioid			
Fentanyl	129 (92.1)	130 (92.9)	0.700
Mepridine	11 (7.9)	10 (7.1)	
No	138 (98.6)	137 (97.9)	
LA			
Bupivacaine	140 (100)	140 (100)	--
Hypertension			
Yes	7 (5.0)	27 (19.3)	<0.001
No	133 (95.0)	113 (80.7)	
Depression (pre-delivery)			
No	140 (100)	140 (100)	--
Depression (post-delivery)			
Yes	0	4 (2.86)	0.044
No	140 (100)	136 (97.14)	

Discussion

We know little things about pain during labor and mental wellbeing [14]. Depression is one of the most frequent postpartum mood disorders, which affected by socio-demographic and personal variables [15]. These pregnancy and labor-related factors had considerable influences on occurrence of postpartum depression [16]. Eisenach *et al*. described pain in delivery associated sites in perineum, pelvis or abdomen as primary outcome measure [17]. Labor is usually associated with very severe pain [5, 18].

Having pain experience during labor and delivery has impact on mother emotional status. Women

experiences can help to health providers for preparation of them for delivery and adaptation with cognitive behavior [19].

Depression was high over 6 months after delivery in Brazilian mothers [14]. The results of Zaers *et al*. survey showed a high prevalence rate of mood disorders after birth periods [20].

Personal previous history including mental disorders and trait anxiety were known as valid predictors for anxiety and depression [18]. Even, sustained postpartum pain three-fold increased risk of postpartum depression [10]. The results of several studies demonstrated correlation between severity of pain and mood disorders. The severity of postpartum blues can play role in prediction of postnatal depression.

Therefore, risk factors including pain could be controlled and improved efficiency of early diagnosis [9]. On the other hand, uncontrolled labor pain increases the probability of chronic pain and postpartum depression. Accordingly, good control of pain during labor by epidural analgesia can reduce risk of chronic pain and postpartum depression [21].

Among of analgesic modalities, neuraxial block is a gold standard of analgesic labor. Epidural analgesia and combined spinal-epidural analgesia are most common methods for relieving pain during labor [22]. But, Tobin *et al*. [23] could not find any correlation between using labor epidural analgesia and reduced rates of postpartum depression. Their study was in contrast to Ding *et al*. [1], who established that labor epidural analgesia can decrease rate of postpartum depression. Tobin *et al*. concluded that labor epidural analgesia was an intervention without ability for reducing the incidence of postpartum depression [23]. These results should induce progression strict review about obstetric intervention during delivery and providing care for parturient [24].

It is suggested that next studies be conducted in larger populations and in follow-up periods. Some EPDS studies have confirmed their cultural status. It may be a good way to get a closer look at postpartum depression.

Conclusion

Postpartum depression in women with painless delivery is lower compared to women with natural delivery.

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Ethical Permission: This research approved by ethical committee of Tabriz University of medical sciences in date of 15 February 2015 by ethical code of TBZMED.REC.1394.1094.

Conflict of Interests: There is no conflict of interest.

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