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Original Article

Correlation between Postpartum Depression and Regional Anaesthesia during Labor: A Study Conducted at Allied Hospitals, BMC Bannu-KPK

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Abstract

Objective: The present study helped in evaluating the correlation between postpartum depression and regional anaesthesia during labor in female referred to allied teaching hospitals of BMC Bannu-KPK.

Methods: This prospective, cohort study was conducted on 180 conceived females that were approached to BMC allied teaching hospitals during March 2019 to February 2020. The subjects were divided into two equal groups A & B. Group A received regional anaesthesia whereas group B was treated without regional anaesthesia after informed consent. Each group comprised 90 subjects and comparisons were done for any correlation between regional anaesthesia and postpartum depression during labor.

Results: The results showed no remarkable difference between the two groups with respect to their BMI, age, and time of delivery was recorded yet, the severity of pain was different during numerous delivery phases and this was due to the administration of anaesthesia for one of the groups. Following the first week of baby birth, no remarkable association was seen between depression and regional anaesthesia. However, in the fourth week, a remarkable association as the administration of regional anaesthesia reduced the postpartum depression incidence in this week (p=05).

Conclusion: Our study concluded that the effect of regional anaesthesia does not impose any significant effect on postpartum depression during 1st week however, the reduction can be seen in postpartum depression during the 4th week of the child's birth.

Keywords: Body Mass Index, Postpartum Depression, Depressive Disorder, Pain

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Introduction

A common problem that is encountered by the conceived female is postpartum depression. The problem is seen commonly during the 1st to 4th week after the baby's birth. The depression is more likely to be seen in those who conceived for the first time. Research shows that 10-15% of females go through this condition more or less twelve months after their child's birth.[1,2] A few studies added that the problem is severe in those mothers who are younger or experienced sexual abuse earlier.[3,4] The reported symptoms of depression following baby birth are up to 20% in another study.[5,6]

The changes of a girl into motherhood is a complex process that brings various physiological, psychological, and social alterations in her body.[7-10] These changes increase the susceptibility for the development of her mental ailment. Due to the reproductive nature of the women, the depression ratio in women is 2 times greater than in the male.[11-13] In developing countries, postpartum depression always remains a matter of concern by health care professionals.

There are many contributing factors to the problem aforesaid, but the exact reason is still unknown. Researchers showed that the baby birth process contributes significantly to the development of the problem.[7-10] Labor pain is stood responsible by the researchers in the onset and progression of postpartum depression. According to our knowledge, no report is published for the Pakistani community for the correlation between regional anaesthesia and postpartum depression. Many studies are conducted in the rest of the world that mentioned various affecting variables as well in the onset of postpartum depression. The objective of this study was to assess any possible association and correlation between regional anaesthesia during the labor process and postpartum depression in females reported to BMC Bannu allied teaching hospitals during 2018 to 2019.

Methods

The study (prospective cohort) was conducted on 180 conceived females during March 2019 to February 2020. The approval was granted by the ethical committee of Bannu Medical College. The subjects who approached to labor room of the hospitals were divided randomly into two equal groups with 90 subjects in each group A and B. The division was based on the patient's consent to receive RA or not. Informed written consent was obtained from the subjects who were included in the study. Those having C-section delivery, neural history, preceding depression record, etc were excluded from the study. All associated data of the subjects including maternal age, gestational age, BMI, etc was recorded. Regional anaesthesia was given to the subjects in group A in the dilatation phase (3-5cm). The participants of group B were not given any regional anaesthesia. The subjects of both groups were analysed for 37 days for any possible postpartum depression. The intensity of the pain was recorded using the VAS (Visual analogue scale) for both groups. The Visual Analogue Scale (VAS) consisted of a straight line with the endpoints defining extreme limits such as 'no pain at all' and 'pain as bad as it could be'. The patient was asked to mark his pain level on the line between the two endpoints. The distance between 'no pain at all' and the mark then defines the subject's pain. If descriptive terms like 'mild', 'moderate', 'severe' or a numerical scale are added to the VAS, one speaks of a Graphic Rating Scale (Figure 1).

Data was collected and analysed using statistical program SPSS version 18. A paired t-test was used for the comparison of the results before and following treatment. An independent t-test was used to compare the two groups individually. p-value less than 0.05 was considered statistically significant.

Results

Demographic/social Characteristics

The study was conducted on 180 subjects with a response rate of 98.2%. Their mean age was 25.56 (SD±2.3). 68 (37.77%) subjects were between 31-38 years whereas 45 (25.00%) were between 25-30 years. 72 (40.00%) were illiterate, 42 (23.33%) graduate and 28 (15.55%) were masters. 115 (68.88%) subjects were housewives whereas 39 (21.66%) were government employees. BMI for different age groups was 24, 26, 31, and 33 respectively. The P-value for those associated with a state of anxiety was less than 0.005 (Table 1).

It is evident from the findings that the subjects in both groups do not show any significance in terms of BMI, age, level of depression in 1st and 4th week, duration of labor in 1st, 2nd and 3rd phases, and pain intensity in 1st week of labor prior to regional anaesthesia at 95% confidence level. But, the pain intensity after regional anaesthesia during the 1st, 2nd, and 3rd phases were remarkedly different among the subjects of the two groups. Since regional anaesthesia exerts a promising effect on pain release, so it is obvious that the pain intensity among the two groups following regional anaesthesia is different, the similar variables of BMI, age, and birth time shows the random selection of the subjects. But the depression variable in the fourth week should be assessed with precision on EPDS-28 (Edinburgh Postnatal Depression Scale) (Table 2).

Association between Various Research Variables

The association between numerous research variables and depression level during the first and fourth weeks of pregnancy can be best understood with the help of the Pearson correlation coefficient. In our study, we investigated the control group first having experienced a normal birth without anaesthesia (Table 2). The data in table 2 indicate a significant and positive correlation between depression and various variables in the fourth week following childbirth. A direct connexion is observed between numerous variables with the help of a positive correlation coefficient. The intensity of the effect of variable on one another can be understood with the help of the size of the correlation coefficient. We can conclude from the correlation coefficient value (which is always less than 0.3) that in the fourth week, there is a weaker correlation among the variables in the fourth week following childbirth. Contrary to this, an increased postpartum depression in the fourth week following childbirth is a resultant of an increased BMI, age, and intensity of pain. It is to be noted that BMI and age have got a positive effect on postpartum depression during 1st week after childbirth, therefore,

we can conclude that in the absence of regional anaesthesia, the depression rate is increased with an increase in BMI and age. The correlation between BMI and age with postpartum depression is based on the data below (Table 3).

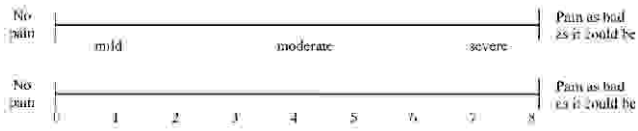

Figure-1: *Visual Analogue Scale (Graphic rating scale)*

Table 1: *Demographic Data of the Study Subjects*

Sr. No	Variables	Percentage
1.	**AGE**	
	18-24	18.88%
	25-30	25.00%
	31-38	37.77%
	39-50	18.35%
2.	**Education**	
	Illiterate	40.00%
	Matriculation	21.12%
	Graduate	23.33%
	Masters	15.55%
3.	**Occupation**	
	Housewife	68.88%
	Government employee	21.66%
	Private employee	2.46%
	University students	7.00%
4.	**Wealth status**	
	Rich	8.33%
	Mediocre	55.00%
	Poor	36.67%

Table 2: *Association between Postpartum Depression and Other Variables before Regional Anaesthesia*

Variable	Description	*EPDS-7	EPDS-28
Age	Significance Level	250/0	210/0
	Correlation coefficient	010/0	033/0
BMI	Significance Level	210/0	207/0
	Correlation coefficient	030/0	031/0
1st Phase pain intensity (VAS 1)	Significance Level	136/0	221/0
	Correlation coefficient	180/0	021/0
2nd Phase pain intensity (VAS 2)	Significance Level	160/0	256/0
	Correlation coefficient	090/0	010/0
3rd Phase pain intensity (VAS 3)	Significance Level	152/0	198/0
	Correlation coefficient	126/0	044/0

*EPDS: Edinburgh Postnatal Depression Scale

We have investigated that the incorporation of regional anaesthesia causes no remarkable association between BMI, age, and intensity of depression after delivery phases (1st and 3rd). After anaesthesia, the pain intensity in the 1st and 2nd phase possesses a positive but poor co-relation with an intensity in the 1st and 4th weeks following childbirth.

Table 3: *Association between Postpartum Depression and Other Variables after Regional Anaesthesia*

Variable	Description	EPDS-7	EPDS-28
Age	Significance Level	078/0-	98/0-
	Correlation coefficient	127/0	330/0
BMI	Significance Level	188/0	078/0
	Correlation coefficient	030/0	401/0
1st Phase pain intensity (VAS 1)	Significance Level	130/0-	156/0-
	Correlation coefficient	182/0	108/0
2nd Phase pain intensity (VAS 2)	Significance Level	260/0	252/0
	Correlation coefficient	005/0	044/0
3rd Phase pain intensity (VAS 3)	Significance Level	070/0	018/0-
	Correlation coefficient	456/0	760/0
Pain intensity following anaesthesia (VAS18)	Significance Level	260/0	201/0-
	Correlation coefficient	006/0	040/0

Discussion

The work done was carried out to explore the connection between postpartum depression and regional anaesthesia during labor. All the information regarding BMI, age, time of childbirth, postpartum depression, and intensity of pain during numerous phases. It was observed that postpartum depression and maternal age didn't possess any remarkable relationship, but a positive co-relationship was observed between the depression and BMI during the 1st and 4th week of childbirth. On the other hand, no remarkable effect of regional anaesthesia was observed on depression during 1st week of childbirth but a positive and week co-relation was observed between postpartum depression and regional anaesthesia.

The data demonstrated that 15% of mothers experienced postpartum depression in 1st week of childbirth whereas 12% of mothers experienced the same in 4th week of childbirth. Pearson correlation coefficient and mean parity test for two groups indicated no significant relationship between depression following childbirth and regional anaesthesia.[6-8] We investigated that regional anaesthesia did not possess any negative impression on postpartum depression and a remark-

able relation was there between reduced depression and anaesthesia.[7-11] More likely studies are recommended to investigate the association between regional anaesthesia and postpartum depression after childbirth. Additionally, in order to measure the possible effects of various variables on each other, cross-sectional regression can be incorporated.

A recent report showed that as compared to regional anaesthesia, general anaesthesia for cesarean delivery is associated with increased odds of severe PPD requiring hospitalization, suicidal ideation, and self-inflicted injury. If confirmed, these preliminary findings underscore the need to avoid the use of general anaesthesia for caesarean delivery whenever possible, and to provide mental health screening, counselling, and other follow-up services to obstetric patients exposed to general anaesthesia.[12-14]

Conclusion

We concluded that regional anaesthesia doesn't have any significant effect on postpartum depression after childbirth during 1st week but a reduction in its frequency is observed in 4th week after childbirth. Further study on extended sample size is recommended. The study has some limitations. We used the EPDS rather than the clinical diagnosis of postpartum depression as the criterion measure. However, the goal of this study was to lessen the burden of screening for postpartum depression, not to diagnose key depression disorders, or to assess the costs and benefits of screening, which may produce many false positives.

Conflict Of Interest

None

Funding Source

None

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