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Comparison of Post Dural Puncture Headace Event Numbers in Sesaria Section Patients with Spinal Anesthesia Using Spinocain no 25 and no 27 at RSUP H.Adam Malik Medan

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Abstract:-

Background: Caesarean section is a surgical technique to deliver a fetus through an incision in the abdominal wall and uterus. According to data from the WHO (World Health Organization), in 2010 the average cesarean section was around 5-15% per 1000 births in the world. The incidence of cesarean section in Indonesia has a rate of approximately 6.8% per 1000 births. Cesarean section is certainly inseparable from anesthesia. Generally, a cesarean section is performed using a regional anesthetic technique. Spinal anesthesia (subarachnoid block) is the preferred choice for cesarean section. The most common complication that occurs is Post Dural Puncture Headache (PDPH) or post-spinal anesthesia headache which can be caused by CSF leakage (Liquor Cerebra Spinal) due to spinal tissue injection.

Objective: To determine the comparison of the incidence of post-dural puncture headache in section cesarean patients with spinal anesthesia using spinocan 25G and spinocan 27G at RSUP H. Adam Malik Medan and University Hospital of North Sumatra.

Methods: The research design used in this study was a clinical trial using a double-blind randomized method carried out for 3 months, namely in August-October 2020 at the Central Surgical Installation of the Adam Malik Center General Hospital Medan and the University Hospital of North Sumatra. The sample obtained in this study amounted to 58 people according to the calculation of the number of samples, inclusion and exclusion criteria, which were then divided into 2 groups, namely 29 people in group A (spinocan 25G) and 29 people in group B (spinocan 27G).

Results: The incidence of PDPH in cesarean section patients with spinal anesthesia was greater in the group using spinocan 25G than using spinocan 27G, which had a significant difference, especially at 24 hours and 48 hours (p <0.05).

Conclusion: There is a significant difference in the incidence of PDPH in cesarean section patients at 24 hours and 48 hours.

Keywords:- *PDPH, Caesarean Section, Anesthesia, Spinal, SpinocanKeywords: Hamilton Anxiety Rating Scale, Alprazolam , Anxietas*

I. INTRODUCTION

Caesarean section is a surgical technique for delivering the fetus through an incision in the abdominal wall and uterus. According to WHO (World Health Organization) data, in 2010 the standard rate of caesarean section was around 5-15% per 1000 births in the world. Caesarean section certainly cannot be separated from anesthesia. Anesthesia is generally divided into general anesthesia and regional anesthesia. General anesthesia works to suppress the hypothalamus pituitary axis of the adrenal, while regional anesthesia functions to suppress the transmission of pain impulses and suppress efferent autonomic nerves to the adrenals. Generally, a caesarean section is performed using regional anesthetic techniques. Regional anesthesia for obstetric patients is the subarachnoid block technique.[1]

Spinal anesthesia (subarachnoid block) is a regional anesthetic by injecting a local anesthetic drug into the subarachnoid space. Spinal anesthesia is also known as intradural spinal block or intrathecal block. Spinal anesthesia is produced when we inject a local analgesic drug into the subarachnoid space between the Lumbar 2 and Lumbar 3, Lumbar 3 and Lumbal 4 or Lumbal 4 and Lumbal 5 vertebrae.[2]

The International Headache Society defines PDPH as a headache that occurs within 7 days after dural puncture and disappears within 14 days but PDPH has been reported to occur later and last longer than that time and is considered a cause of orthostatic headaches characterized by an increase in the degree of headache if the patient moves from a lying down to an upright position.[3]

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Post Dural Puncture Headache (PDPH) or post spinal anesthesia headache can be caused by CSF (Liquor Cerebra Spinal) leakage due to spinal tissue injection which causes a decrease in CSF pressure, resulting in an imbalance in CSF volume. This condition will cause a pull on the intracranial structures that are very sensitive to pain, where the pain will increase in an upright position and will be reduced when lying down, this is because when standing CSF from the brain flows downward and when lying down CSF flows back into the skull cavity and will protects the brain so that pain is reduced.[4]

The incidence of headache after spinal anesthesia varies from study to study. The incidence was 40% with a 20 GA needle, 25% with a 25 GA needle, 2-10% with a 26 GA needle and less than 2% with a 29 GA needle. The risk factors that have been reported to influence the incidence of PDPH are: age, sex, pregnancy, previous history of headache, needle size, needle tip shape, bevel orientation for dural fibers, number of attempts at spinal anesthesia, type of local anesthetic solution and operator clinical experience.[5]

Research conducted by Lofty Emad, et al., In 2013 on 26 people comparing the incidence of PDPH in three needle sizes, namely 22G, 25G and 29G, found the incidence of PDPH on needles with a size of 25G as many as 7 people (11.7%).[6]

From the background above, because of the differences in results between previous studies regarding the relationship between spinocan needle size and the incidence of PDPH, the authors are interested in conducting a study on the comparison of the size of spinocan 25G and spinocan 27G with the incidence of PDPH after spinal anesthesia in patients with section sesaria.

II. METHODS

The research design used in this study was a clinical trial using a double-blind randomized method carried out for 3 months, namely in August-October 2020 at the Central Surgical Installation of the Adam Malik Center General Hospital Medan and the University Hospital of North Sumatra. The sample obtained in this study amounted to 58 people according to the calculation of the number of samples, inclusion and exclusion criteria, which were then divided into 2 groups, namely 29 people in group A (spinocan 25G) and 29 people in group B (spinocan 27G).Before surgery, all possible patients to be sampled were examined whether they met the inclusion criteria or not, after being assigned the patients were randomly randomized and determined whether they were group A or group B. The anesthesia is done in the LLD position and before doing the spinal, local anesthesia is given with lidocain around the injection area and the T5-T6 block height is adjusted. After cesarean section, we assessed the patient for the incidence of PDPH for one week after cesarean section surgery. PDPH assessment was done by using the diagnostic criteria for PDPH patients.

III. RESULTS

This study was attended by 58 subjects who met the inclusion criteria. The characteristics of this study were displayed based on age,ethnic, religion, education, and BMI

4.1 Demographic Data Table

Characteristic	Spinocan 25G	Spinocan 27G	*p-value*
Age, mean ±SD	29,34 ± 5,19	28,55 ± 4,85	0,550[a]
Ethnic, n (%)			
Batak	11 (37,9)	11 (37,9)	
Javanese	5 (17,2)	5 (17,2)	0,982[b]
Minang	4 (13,8)	5 (17,2)	
Malay	9 (31,0)	8 (27,6)	
Religion, n (%)			
Islam	16 (55,2)	19 (65,5)	
Christian	11 (37,9)	8 (27,6)	0,694[b]
Catholic	2 (6,9)	2 (6,9)	
Education, n (%)			
Bachelor Degree	11 (37,9)	11 (37,9)	
Senior High School	17 (58,6)	17 (58,6)	1,000[b]
Junior High School	1 (3,4)	1 (3,4)	
BMI, mean ±SD	24,32 ± 3,35	24,77 ± 2,87	0,422[c]
Total	**29**	**29**	

a = T-Test Independent, b = Chi Square test, c = Mann-Whitney test

Based on age, in the Spinocan 25G group the mean age was 29.34 ± 5.19 years, while in the Spinocan 27G group it was 28.55 ± 4.85. Statistically, these two groups were homogeneously distributed based on their age with a value of p = 0.550. Based on ethnicity, the Spinocan 25G group found 11 samples of Batak ethnicity (37.9%), 5 Javanese (17.2%), 4 Minang ethnic groups (13.8%), and as many as Malays. 9 people (31.0%). Whereas in the Spinocan 27G group, there were 11 samples of Batak ethnicity (37.9%), 5 Javanese (17.2%), 5 Minang people

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(17.2%), and 8 Malays. (27.6%). Statistically, these two groups were homogeneously distributed based on ethnicity, with a p value = 0.982. Based on their religion, the Spinocan 25G group found 16 samples of Islam (55.2%), 11 Protestants (37.9%), and 2 Catholics (6.9%). Whereas in the Spinocan 27G group, there were 19 samples of Islam (65.5%), 8 Protestants (27.6%), and 2 Catholics (6.9%). Statistically, these two groups were homogeneously distributed based on their religion, with a p value = 0.694. Based on their education, in the Spinocan 25G group, there were 11 samples (37.9%) with undergraduate education, 17 high school students (58.6%), and 1 junior high school education (3.4%). And in the Spinocan 27G group, there were also 11 samples (37.9%) with undergraduate education, 17 high school students (58.6%), and 1 junior high school education (3.4%). Statistically, these two groups were homogeneously distributed based on their education, with a value of p = 1,000. Based on the BMI, in the Spinocan 25G group the mean BMI was 24.32 ± 3.35 kg / m2, while in the Spinocan 27G group it was 24.77 ± 2.87 kg / m2. Statistically, these two groups were homogeneously distributed based on their BMI with p value = 0.422.

4.2 Comparison of the Incidence of PDPH in Caesarean Section Patients with Spinal Anesthesia Using Spinocan 25G and Spinocan 27G

	N (%)		p-value
	Spinocan 25G	Spinocan 27G	
T1 (24th hour)	8 (27,6)	2 (6,9)	0,037*
T2 (48th hour)	7 (24,1)	1 (3,4)	0,022*
T3 (72th hour)	3 (10,3)	2 (6,9)	0,640
T4 (96th hour)	-	-	-
T5 (144th hour)	-	-	-
T6 (168th hour)	-	-	-

*Chi Square test

Based on Table 4.2 above, obtained at T1, 8 people (27.6%) had PDPH in the Spinocan 25G group, and 2 people in the Spinocan 27G group (6.9%). At T2, 7 people were found to have PDPH in the Spinocan 25G group (24.1%), and 1 person in the Spinocan 27G group (3.4%). And at T3, there were 3 people (10.3%) who experienced PDPH in the Spinocan 25G group, and 1 person in the Spinocan 27G group (3.4%). No sample experienced PDPH incidence at T4, T5, and T6. Statistically, there was a significant difference in the incidence of PDPH between the two groups, namely at T1 and T2 with p value <0.05.

IV. CONCLUSIONS

The incidence of PDPH in cesarean section patients with spinal anesthesia was greater in the group using spinocan 25G than using spinocan 27G, which had a significant difference, especially at 24 hours and 48 hours (p <0.05).

The incidence of PDPH in cesarean section patients with spinal anesthesia using spinocan 25G was 8 people at 24 hours, 7 people and 48 hours, and 3 people at 72 hours.

The incidence of PDPH in cesarean section patients with spinal anesthesia using spinocan 27G is 2 people at 24 hours, 1 person and 48 hours, and 2 people at 72 hours.

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