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FREQUENCY OF POST SPINAL HYPOTENSION IN ELECTIVE CESAREAN SECTION AFTER SPINAL ANESTHESIA

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Abstract

Objective: the aim of the study was to determine the Frequency of Post Spinal Hypotension in Elective Cesarean Section after Spinal Anesthesia**.**

Material and method: The current observational study was carried out at Anaesthesia Department Khyber Teaching Hospital Peshawar January 2023 to September 2023 after taking approval from the ethical committee of the institute. A total of 274 patients who underwent spinal anesthesia for caesarian section were enrolled founded on the incidence 23 percent confidence interval ninety five percent and margin of error five percent this has been calculated by applying WHO sample size calculator $n = p(1-p)(Z/e)^2$

Results: We enrolled a total of 274 individuals in the current study who were treated from spinal anesthesia for caesarian section. Out of which 74 (27%) had hypotension after surgery. When administering spinal anaesthesia, various medication dosages and age weights were employed. Hypotension affected 17 participants (22.8%) in the 18–29 age group and 57 (77%) in the 30–40 age group. According to the weight of the individual 10 individuals (13.5%) among the 274 individuals studied weighed between 49 and 65 kg, 21 patients (28.3%), and 43 patients (58.1%) who weighed between 81 and 90 kg had hypotension. Based on the medication and dosage used out of the total samples bupivacaine with 2% lignocaine in 23 patients (31%) ,bupivacaine with fentanyl had 35 participants (47.2%) and bupivacaine with tramadol 16 participants (21.6%) had hypotension. Out of the 274 participants in our research, 4 had already existing hypertension. Approximately 1.5%, as a result of dehydration and NBM status, whereas 74 patients (27%) had hypotension following spinal anaesthesia. Using dose of bupivacaine 55 patients (74%) had hypotension at a dosage of 15 mg of bupivacaine, whereas 19 participants (26%) experienced it with a dose of 10 mg. individuals with a history of using anti-hypertensive medications Ten (13.5%) of the participants had never used anti-hypertensive medication before, while 64 patients (86.4%).

Conclusion: After examining the data, we concluded that spinal produce hypotension following spinal anaesthesia is frequently seen during elective caesarean deliveries.

Key words; Cesarean section, spinal anesthesia, spinal induce hypotension,

Introduction

Worldwide in an emergency the most prevalent surgical procedure is caesarean section. During the subarachnoid block's administration a significant number of the advised patients had surgery (1-3). The preferred technique for emergency caesarean sections is spinal anaesthesia because of its simplicity in administration and rapid onset. It comprises using a spinal needle to anaesthetize the subarachnoid space and surrounding nerves that feed the abdomen and uterus with local anesthetics. (4, 5). The main supply level for this subarachnoid block is T6 to T10, and it is supplied between the L3 and L4 and L4 and L5 subarachnoid spaces. Moreover, hypotension was the most common incidental consequence after subarachnoid block (6, 7). A decline in blood pressure of over twenty percent from the baseline mean arterial blood pressure is known to as hypotension. Sixty-four percent of women who had spinal anaesthesia followed by a caesarean delivery had hypotension. (8, 9). A research carried out at Siriraj Hospital found that 76% of patients had hypotension under spinal anesthesia for a caesarean delivery (10). Hypotension may be caused by a number of factors, including a history of hypertension, body mass index, height of sensory block, time between spinal induction and foetal delivery, surgical urgency, spinal additives, length of crystalloid load, and injection rate (11, 12). The best positions for individuals to be in to prevent aortocaval compression, the use of colloidal and crystalloid liquids to increase available vascular volume, the make use of ephedrine to increase peripheral vascular resistance, heart rate, and cardiac output, the use of alpha 1 agonists to increase peripheral vascular resistance, and mechanical compression of the lower limbs to increase blood pressure were all suggested as potential treatments for hypotension. Although the standard of anaesthetic care has improved over time, no previous research in our setting has been conducted and there have been personal observations of hypotension occurring (13, 14). The current study was carried to find out the frequency of post spinal hypotension in elective cesarean section after spinal anaesthesia.

Materials and methods

The current observational study was carried out at Anaesthesia Department Khyber Teaching Hospital Peshawar from January 2023 to September 2023 after taking approval from the ethical committee of the institute. Using a WHO computer, sample size was determined by looking at the incidence of post-spinal hypotension following spinal anaesthesia during an elective caesarean delivery. A total of 274 patients who underwent spinal anesthesia for caesarian section were enrolled founded on the incidence 23 percent confidence interval ninety five percent and margin of error five percent this has been calculated by applying WHO sample size calculator $n = p(1-p)(Z/e)^2$

Collection of data

Visited to the caesarean section within the relevant operating room, we were requested to participate in the study and briefed about its aim. Each and every patient who gave their assent was added to the research promptly. The patient record contains the data collection sheet that has to be filled out in order to gather the information needed for the questionnaire card.

The following details are entered into the data collection sheet: Gander's age, MR numbers, blood pressure levels before and after spinal anaesthesia, use of antihypertensive medications, and the patient's compliance with the standard operating procedure of HMC Hospital Peshawar were all recorded. Information will be gathered from study participants who are willing to take part, and patient data will then be gathered through direct observation and interviews.

Analysis of data

The data collected were all input into Microsoft Excel 2007 and the percentages were manually calculated. Word and MS Excel were used to create the figures and tables.

Results

We enrolled a total of 274 individuals in the current study who were treated from spinal anesthesia for caesarian section. Out of which 74 (27%) had hypotension after surgery. When administering spinal anaesthesia, various medication dosages and age weights were employed. Hypotension affected 17 participants (22.8%) in the 18–29 age group and 57 (77%) in the 30–40 age group. According to the weight of the individual 10 individuals (13.5%) among the 274 individuals studied weighed between 49 and 65 kg, 21 patients (28.3%), and 43 patients (58.1%) who weighed between 81 and 90 kg had hypotension. Based on the medication and dosage used out of the total samples bupivacaine with 2% lignocaine in 23 patients (31%) ,bupivacaine with fentanyl had 35 participants (47.2%) and bupivacaine with tramadol 16 participants (21.6%) had hypotension. Out of the 274 participants in our research, 4 had already existing hypertension. Approximately 1.5%, as a result of dehydration and NBM status, whereas 74 patients (27%) had hypotension following spinal anaesthesia. Using dose of bupivacaine 55 patients (74%) had hypotension at a dosage of 15 mg of bupivacaine, whereas 19 participants (26%) experienced it with a dose of 10 mg. individuals with a history of using anti-hypertensive medications Ten (13.5%) of the participants had never used anti-hypertensive medication before, while 64 patients (86.4%) experienced hypotension. Age Wise Distribution of Post Spinal Hypotension have been shown in **table 1** while **Table 2** show weight of the patients of the study population. Post spinal hypotension drug dosage has been explain in **table 3.** The frequency of systolic and diastolic blood pressure after spinal anaestheisa of the individuals are displayed in **table 5**.

Table No 1 Age Wise Distribution Post Spinal Hypotension

	Frequency	Percent
18-29 years	126	45.98
30-40	148	54.02
Total	274	100.0

Table 2 weight of the patients of the study population

Weight in gram	Frequency	Percent
49-65 kg	63	22.99
66-80 kg	104	37.9
81-90 kg	107	39.
Total	274	100.0

Table 3. Dose of drugs post spinal hypotension

Dose in milligram	Frequency	Percent
10 mg	171	62.4
15 mg	103	37.5
Total	274	100.0

Discussion

A total of 274 individuals in our research who were under spinal anaesthesia were directed to the gynecology department for an elective caesarean section. The patient was hypotensive before spinal anaesthesia because of non-oral conditions (NBM) & dehydration. In the current study a total of 274 individuals, 4 were already hypotensive, hypotention. 5 percent of patients, but 26.8% of them, are at risk of hypotension before receiving spinal anaesthesia.(15) Volume preloading in pregnant individuals would only lessen the hypotensive response under spinal anaesthesia in this research; it would not alter the beginning of hypotension following spinal anaesthesia, nor would it completely eradicate it. Leg wrapping significantly lowers the incidence of postspinal hypotension in comparison to leg elevation alone, according to a research by Rout et al. With a 95% confidence

interval of 0.7–4.9, leg elevation by alone did not lead to a statistically significant decrease in the incidence of postspinal hypotension.(8) Nevertheless, upon data analysis, we discovered that spinal block-induced hypotension happens after elective caesarean sections; nevertheless, there are other aspects or reasons that contribute to this condition, including: Among them, the following factors were highly predictive of moderate, severe, and mild hypotension, respectively: baseline SBP < 120 mm of mercury, previous episodes of hypotension (RR = 6.98), as well as gestation ≥ 4. In the end, modelling related to anaesthesia revealed that hypotension was linked to fluid preload, a local anaesthetic dosage given with 1 μg of safentanil, and sensory blockade. The best predictor of anesthesia-related variables was the degree of sensory block > T4. (16) Our findings support earlier reports of post-UShypotension following caesarean sections is quite common. The results of this study found eight independent factors linked with the occurrence of US-induced hypotension following elective caesarean surgery, while increases in physical exertion may be a reasonable cause. (17) The present research frequently mentions advanced age as an indicator of AS-induced hypotension. Elderly people's SBP has been found to significantly decrease in several studies. Our study's endpoint was over 35 years, which is consistent with other research, and individuals with AS tend to have a later onset of hypertension. Additionally, the hypotension incidence in the group administered with a 40-degree LR in the horizontal plane was found to be significantly lower than in the group serving as the control (34.7% vs. 58.7%, p=0.005), which is consistent with the findings of the Hasanin et al. research(18). Reduced heart rate and modifications to the reactions of the sympathetic nervous system and baroreceptors may be major factors in raising the risk of low blood pressure in older people. Multiple opioids added to local anaesthetics have been a common technique used by AS in CS to decrease adverse effects and enhance intraoperative and postoperative analgesic efficacy. The findings of the present study revealed that, in comparison to bupivacaine alone, the combination of sufentanil AC 1 μg and low dosage bupivacaine (10 mg) led to a decreased incidence of moderate to severe hypotension. Yet the majority of investigators have not discovered a noteworthy correlation between intrathecal sufentanil use and hypotension. Sufentanil, when combined with bupivacaine, avoided maternal hypotension in women who were not pregnant.

Conclusion

Age, BMI, weight gain, pregnancy, history of hypotension, systolic blood pressure and heart rate (risk factors for breast fluid), fluid overload, adding sufentanil to bupivacaine, and sensory blockade are some risk factors for spinal-induced hypotension during caesarean section related risk factors for (anaesthesia). After examining the data, we concluded that spinal produce hypotension following spinal anaesthesia is frequently seen during elective caesarean deliveries.

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Table 4. B.P after Spinal Anesthesia Spinal Anesthesia Post Spinal Hypotension

Systolic and diastolic PB	Frequency	Percent
75-100sys/45-60dia	74	27.0
101-130sys/61-75dia	112	40.87
131-170sys/76-95dia	88	32.11
Total	274	100.0