Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.47750/jptcp.2023.30.15.034

Investigation of Causes of the Patient Refusal for Spinal Anesthesia

Mojgan Rahimi[1], Afzal shamsi[2], Asghar Hajipour[3], Mortada Jubara[4], Ekhlas Raheem Resen[5*]

[1]Department of Anesthesiology and Intensive Care, Imam Khomeini Hospital Complex, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.

[2]Department of Anesthesia, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran. Nursing and Midwifery Care Research Center, Tehran University of Medical Sciences, Tehran, Iran.

[3]Department of Anesthesiology, School of Medicine, Vali Asr Hospital, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, Iran.

[4]Assistant Professor, Chair of Interventional Pain Management, Subspecialty at Council of Arab Board of Medical Specializations, Medical City Complex Hospitals, Baghdad, Iraq.

[5]Student of Anesthesia Technology, Department of Anesthesia, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran

***Corresponding author:** Ekhlas Raheem Resen, Student of Anesthesia Technology, Department of Anesthesia, School of Allied Medical Sciences, Tehran University of Medical Sciences, Tehran, Iran, Email: ekhlas.anaes@gmail.com

Submitted: 27 April 2023; Accepted: 10 May 2023; Published: 01 June 2023

ABSTRACT

Background aimed: Spinal anesthesia is a common technique in surgical procedures involving the injection of local anesthetic into the subarachnoid space. Patient refusal may be due to fear, negative experiences, concerns about side effects or cultural preferences, among other reasons. Failure to address these concerns can lead to anxiety, discomfort, and even cancellation of the procedure. This study aims to identify the reasons for patient refusal of spinal anesthesia.

Method: This a cross-sectional study with data collected from patients who refused spinal anesthesia in two hospitals sites in Maysan-Iraq. The study included patients from different backgrounds and medical histories. The goal was to identify factors that contribute to patient refusal of spinal anesthesia, The collected data were described and analyzed using SPSS software (version 26).

Result: 388 who underwent spinal anesthesia participated in this study, 255 (65.72%) accepted spinal anesthesia and 133 (34.28%) refused, the mean age was (44.12±10.86) years, sex was (52.32%) female and (47.68%) was male, education level, (11.08%) had under a diploma, (66.75%) had a high school diploma, (17.53%) had a bachelor's degree, and (4.64%) had education beyond a bachelor's degree, prior surgery experience, (31.70%) no prior surgery experience , (68.30%) prior surgery experience, method of anesthesia for previous surgery, (15.85%)had epidural anesthesia, (45.28%) had received general anesthesia , (38.87%) had received spinal anesthesia, patient prefer pills or injection during illness, (54.52%) prefer injection, (45.48%) prefer pills, Family history of spinal anesthesia, (31.52%), had family history of spinal anesthesia, (68.48%), no family history of spinal anesthesia, source of information, (37.47%) doctor, (19.64%) friend or family, (28.94%) internet, (13.95%) television or other media.

J Popul Ther Clin Pharmacol Vol 30(15):e304–e309; 01 June 2023.

Conclusion: The study found that prior surgical experience, anesthesia method, patient preference for pills or injections, and source of information significantly influence spinal anesthesia acceptance. While, Age, sex, education level and family history may not statically significant. Further research is needed to confirm findings and identify other factors influencing patient acceptance.

Keywords: *Acceptance, Patient Preference, Refusal, Spinal Anesthesia*

INTRODUCTION

Spinal anesthesia, also known as subarachnoid block, is a type of regional anesthesia that involves injecting a local anesthetic into the cerebrospinal fluid in the spinal canal. This blocks the transmission of nerve impulses from the lower half of the body, resulting in loss of sensation and muscle function below the level of the injection. Spinal anesthesia is commonly used for lower abdominal, pelvic, and lower limb surgeries (1). The choice of local anesthetic and dosage is an important consideration in spinal anesthesia. Bupivacaine, lidocaine, and ropivacaine are commonly used local anesthetics for spinal anesthesia. The dosage of the local anesthetic is based on the patient's weight, age, and medical history, as well as the type and duration of the surgical procedure (2, 3). The advantages of spinal anesthesia include faster onset, better postoperative pain control, and decreased risk of respiratory depression. It also allows for early ambulation and reduces the risk of postoperative complications such as deep vein thrombosis and pneumonia (4). However, potential risks include headache, infection, nerve damage, and hypotension. Hypotension is a common side effect of spinal anesthesia, and can be managed with intravenous fluids, medications, and postural changes (5). Hence, patient refusal of spinal anesthesia can be influenced by a range of factors that must be carefully considered by healthcare providers. By considering psychological factors, information-related factors, past experiences, medical conditions, and personal preferences, healthcare providers can work to ensure that each patient receives the best possible anesthesia option for their individual needs. The goal is to ensure that patients are informed, comfortable, and confident in their anesthesia decision, leading to the best possible outcomes for each individual patient (6, 7, 8).

Aim of this study to determine the main causes of patient refusal for spinal anesthesia in patients who are Candidate for spinal anesthesia in Iraq.

MATERIAL AND METHOD

This cross-sectional study was carried out at two hospitals (Al-Zahrawi surgical hospital and Maysan Child and Maternity hospital), sites in Maysan-Iraq, from December 2022 to May 2023, the study protocol was approved by the Ethics committee of Tehran University of Medical Sciences (IR.TUMS.SPH.REC.1401.279). A total of 388 who underwent spinal anesthesia participated in this study, 255 accepted spinal anesthesia and 133 refused, and met the inclusion criteria such as ASA I or II, were 18 years of age or older, and were scheduled for elective surgery, patient refusal for participate in this study, drug allergy, classification as ASA III or higher, emergency surgery, and contraindications to neuraxial analgesia, were excluded from the study.

The study included participants who underwent surgery with spinal anesthesia on a specified date. The study protocol involved first assessing the patients' acceptance or non-acceptance of spinal anesthesia. Subsequently, the factors influencing spinal anesthesia acceptance were evaluated in both groups. The acceptance group, was selected for control group. In the non-acceptance group, the factors were evaluated and compared with those of the control group.

The distributions of baseline characteristics of the study participants were presented as frequencies with proportions, means, medians, and inter-quartile ranges. All of these analyses were calculated with a 95% confidence interval (CI). For acceptance or refusal as a dichotomous variable, the chi-square test was used to assess the association between refusal of anesthesia and categorical variables such as type of anesthesia. The t-student test was used to compare mean independent variables such as age in these two groups. Uni-variable logistic regression analysis was performed to determine the odds ratio and 95% confidence interval of patient's refusal for each independent variable as a measure of association. Stepwise logistic regression was also used to determine the odds ratio and 95% confidence interval of patient's refusal for each

independent variable adjusted with potential confounders. All analyses were conducted as 2-tailed and a p-value less than 0.05 was considered significant. The analysis was performed using SPSS (version 26).

RESULT

388 patient who underwent spinal anesthesia participated in this study. 255 (65.72%) accepted spinal anesthesia and 133 (34.28%) refused. The mean age of the sample was 44.12±10.86 years. The sample was 52.32% female and 47.68% male. terms of education level, 11.08% had a diploma, 66.75% had a high school diploma, 17.53% had a bachelor's degree, and 4.64% had education beyond a bachelor's degree. Prior surgical experience was reported by 68.30% of the sample, with 31.70% reporting no prior surgical experience.

In terms of the method of anesthesia for previous surgery, 15.85% of participants had received epidural anesthesia, while 45.28% of participants had received general anesthesia and 38.87% of participants had received spinal anesthesia. The most preferred method of administration was injection, with 54.52% of the sample preferring this method, while 45.48 % of those who preferred pills. Family history of spinal anesthesia was reported by 31.52% of the sample, with no significant difference in acceptance rates between those with and without family history.

Source of information was reported by37.47 % of participants who had received information from their doctor, while19.64 % of participants who had received information from a friend or family member, 28.94 % of participants who had received information from the internet, and13.95 % of participants who had received information from television or other media. This characteristics variable in total can be observed in (Table 1).

TABLE 1: Patients characteristics variable in total and in acceptance/refusal of the spinal anesthesia subgroup

Variable		Acceptance N=255 (65.72%)	Refusal N=133 (34.28%)	Total N=388 (100%)	P-Value
Age		43.34± 10.55	45.53± 11.34	44.12±10.86	
Sex	Female	129 (50.59)	74 (55.64)	203 (52.32)	0.344
	Male	126 (49.41)	59 (44.36)	185 (47.68)	
Level of education	Under diploma	28 (10.98)	15 (11.28)	43 (11.08)	0.945
	High school diploma	170 (66.67)	89 (66.92)	259 (66.75)	
	Bachelor	44 (17.25)	24 (18.05)	68 (17.53)	
	Higher than Bachelor	13 (5.10)	5 (3.76)	18 (4.64)	
Prior surgical experience	no	63 (24.71)	60 (45.11)	123 (31.70)	<0.001
	Yes	192 (75.29)	73 (54.89)	265 (68.30)	
Method anesthesia for pervious surgery	Epidural	38 (19.79)	4 (5.48)	42 (15.85)	0.002
	General	76 (39.58)	44 (60.27)	120 (45.28)	
	Spinal	78 (40.63)	25 (34.25)	103 (38.87)	
Patient preference for pills or injection	Injection	128 (50.39)	83 (62.41)	211 (54.52)	0.024
	Pill	126 (49.61)	50 (37.59)	176 (45.48)	
Family history of spinal anesthesia	No	174 (68.50)	91 (68.42)	265 (68.48)	0.987
	yes	80 (31.50)	42 (31.58)	122 (31.52)	
Source of information	Doctor	103 (40.55)	42 (31.58)	145 (37.47)	<0.001
	Friend/family	49 (19.29)	27 (20.30)	76 (19.64)	
	Internet	83 (32.68)	29 (21.80)	112 (28.94)	
	Television/other media	19 (7.48)	35 (26.32)	54 (13.95)	

In table 2 shows the univariable and multivariable analysis for factors of associated with the refusal of spinal anesthesia. Age, method anesthesia for pervious surgery and source of information regarding to television or other media were the $P < 0.05$.

TABLE 2: Factor associated with the acceptance/refusal of the spinal anesthesia

Variable		Odds Ratio	95% confidence interval	P-value	Odds Ratio	95% confidence interval	P-value
Age		1.02	0.99-1.01	0.065	1.04	1.01-1.07	0.014
Sex	female	1	-	-	-	-	-
	Male	0.82	0.54-1.24	0.345	-	-	-
Level of education	High school diploma	1	-	-	-	-	-
	Under diploma	1.02	0.52-2.01	0.947	-	-	-
	Bachelor	1.04	0.59-1.82	0.886	-	-	-
	Higher than Bachelor	0.73	0.25-1.13	0.570	-	-	-
Prior surgical experience	no	1			-	-	-
	Yes	0.40	0.25-0.62	<0.001	-	-	-
Method anesthesia for pervious surgery	Spinal	1	-	-	1	-	-
	General	1.81	1.01-3.24	0.047	2.17	1.15-4.09	0.016
	Epidural	0.32	0.11-1.01	0.052	0.27	0.08-0.88	0.030
Patient preference for pills or injection	Injection	1	-	-	-	-	-
	Pill	0.61	0.40-0.94	0.025	-	-	-
Family history of spinal anesthesia	No	-	-	-	-	-	-
	yes	1.01	0.64-1.58	0.987	-	-	-
Source of information	Doctor	1	-	-	1	-	-
	Friend/family	1.35	0.75-2.44	0.318	1.91	0.85-4.31	0.117
	Internet	0.86	0.49-1.49	0.585	1.09	0.51-2.99	0.827
	Television/other media	4.52	2.32-8.77	<0.001	5.06	2.05-12.49	<0.001

DISCUSSION

Our results showed the mean age of participants who accepted spinal anesthesia method was 43.34±10.55 years, and the mean age of participants who refused was 45.53±11.34 years. However, the statistical analysis reveals that the difference in mean age between the two groups was not statistically significant (p=0.064). Moreover, sex was no statistically significant (p=0.344), between two groups, The acceptance group had a slightly higher percentage of females (50.59%) than males (49.41%). Additionally, education level was no significant difference in education level between the acceptance and refusal groups (p=0.945), In a study conducted by Naik in India (2002), a direct association was observed between the education level and perception of patients regarding the knowledge of anesthesia. This association was stronger after the pre-operation visit by an anesthesiologist; anesthesiologist was more effective for patients with a higher level of education (9). Further studies conducted by SA Emadi, and A Gholipour Baradari in Iran (2017) are recommended to investigate the effect of pre-operation visits on increasing the knowledge of patients about different methods of anesthesia and their advantages/disadvantages (10). Prior Surgical experience, showed that 75.29% of participants with prior surgical experience accepted spinal anesthesia, while only 24.71% of participants with no prior surgical experience accepted it. In contrast, 54.89% of participants with prior surgical experience refused spinal anesthesia, while 45.11% of participants with no prior surgical experience refused it. The

statistical analysis shows that there was a significant difference in the acceptance rates between the two groups ($p<0.001$), indicating that prior surgical experience may influence the decision to accept or refuse spinal anesthesia, the given result suggests that prior surgical experience may influence the acceptance of spinal anesthesia, previous studies conducted by Ashebir, Ayele et al. 2019, Lavado, and Gonçalves et al. 2019, is supported by the fact that patients who have previously undergone surgery may have a better understanding of the anesthesia process and its benefits, leading them to be more likely to accept it. In contrast, patients with no prior surgical experience may be more anxious or unsure about the anesthesia process, leading them to refuse it (11, 12). Patient preference for pills or injection during illness, the result showed that patient preference for pills or injection may play a role in the acceptance of spinal anesthesia; a higher percentage of participants who preferred injection accepted spinal anesthesia compared to those who preferred pills, and the difference in acceptance rates between the two groups was statistically significant ($P=0.024$), Patients who prefer injections may have had previous positive experiences with injections or may believe that injections are more effective than pills. Additionally, patients' preferences for pills may be influenced by other factors., such as fear of needles, pain tolerance, or the nature of the procedure, as explained in the studies of Choi, in et al. (2009), and Hunie, Fenta et al. (2021) (7,13), which are consistent with our study. The method of anesthesia for previous surgery was statistically significant ($p<0.002$), The method of anesthesia used in previous surgeries, such as general anesthesia or neuraxial anesthesia, can potentially influence a patient's decision to accept or refuse spinal anesthesia in subsequent procedures. source of information was statistically significant ($P<0.001$), the most common source of information for people is the doctor, with 40.55% of respondents relying on them. This is followed by the internet at 32.68%, friends/family at 19.29%, and television/other media at 7.48%. The study of P Mavridou, V Dimitriou (2013**),** the fact that 95.5 % of patients wish to personally meet the anesthesiologist before surgery reflects their need to be informed and reassured by the person who is responsible for their perioperative anesthetic care, building a good doctor-patient relationship can help patients deal with their fears so that they can feel safe and reassured (14).

CONCLUSION

Based on the results of the study, it can be concluded that prior surgical experience, method of anesthesia for previous surgery, patient preference for pills or injection and source of information are four factors that significantly influence the acceptance of spinal anesthesia. On the other hand, age, sex, education level and family history of spinal anesthesia had no significant impact on the acceptance of the spinal anesthesia method. These findings can be useful in improving patient education and communication regarding anesthesia options. However, further studies with larger sample sizes and more diverse populations are needed to confirm these findings and identify other potential factors that may influence patient acceptance of anesthesia methods.

Limitations of the study

The study only focused on one specific spinal anesthesia, which may not be applicable to all anesthesia methods. The findings of the study may not be generalizable to other anesthesia methods or procedures.

Ethical approval

The study's ethical approval (IR.TUMS.SPH.REC.1401.279) was approved by the Tehran University of Medical Sciences' ethical committee. For all the information that was acquired, group data were published (instead of individual data). The required data lacks any identity information, such as a name, ID number, country code, or other identifier.

CONFLICT OF INTEREST

The authors say they have no competing interests

REFERENCES

1. Hunie M, Fenta E, Kibret S, Teshome D. The Current Practice of Spinal Anesthesia in Anesthetists at a Comprehensive Specialized Hospital: A Single Center Observational Study. Local and regional anesthesia. 2021;14:51-6.
2. Malamed SF. Handbook of local anesthesia-e-book. Elsevier health sciences; 2019 Mar 28.

3. Reynolds F. Maximum recommended doses of local anesthetics: a constant cause of confusion. Regional anesthesia and pain medicine. 2005 May 1;30(3):314.
4. Greene NM. Spinal anesthesia: practical applications. The Yale Journal of Biology and Medicine. 1993 Sep;66(5):433.
5. Hyderally H. Complications of spinal anesthesia. The Mount Sinai journal of medicine, New York. 2002 Jan 1;69(1-2):55-6.
6. Rhee WJ, Chung CJ, Lim YH, Lee KH, Lee SC. Factors in patient dissatisfaction and refusal regarding spinal anesthesia. Korean journal of anesthesiology. 2010;59(4):260-4.
7. Choi JG, In J, Shin HI. Analysis of factors related to patient refusal of spinal anesthesia. Korean journal of anesthesiology. 2009;56(2):156-61.
8. Olawin AM, M Das J. Spinal Anesthesia. [Updated 2022 Jun 27]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK537299/.
9. Jathar D, Shinde VS, Patel RD, Naik LD. A Study Of Patients'perception About Knowledge Of Anaesthesia & Anaesthesiologist. Indian Journal of Anaesthesia. 2002 Jan 1;46(1):26-30
10. Emadi SA, Gholipour Baradari A, Nasiri E, Khademloo M, Moosazadeh M, Abootorabi M. Investigation of the pregnant women desire to choose the type of anesthesia during cesarean section in imam khomeini hospital, sari, iran, in 2017. Journal of Surgery and Trauma. 2021 Jul 10;9(2):79-88.
11. Lavado J, Gonçalves D, Gonçalves L, Sendino C, Valente EJREdAyR. General or regional? Exploring patients' anaesthetic preferences and perception of regional anaesthesia. 2019;66(4):199-205.
12. Ashebir NY, Ayele BWJIJoM, Sciences M. Prevalence and risk factors of acute backache after spinal anesthesia in surgical procedures at asella teaching and referal hospital, asella, Ethiopia. 2019;11(1):1-10.
13. SS AA, ALmetrek M, Alzillaee AY, Hassan WJ, SM AA. Knowledge, attitude, and practice of childbearing women toward epidural anesthesia during normal vaginal delivery in Alsanayeah Primary Health Care in Khamis Mushait. Journal of Family Medicine and Primary Care. 2020 Jan 28;9(1):99-104.
14. Mavridou P, Dimitriou V, Manataki A, Arnaoutoglou E, Papadopoulos GJJoa. Patient's anxiety and fear of anesthesia: effect of gender, age, education, and previous experience of anesthesia. A survey of 400 patients. 2013;27:104-8.