

The Frequency of Post Dural Puncture Headache: Comparison of 25G Quincke Spinal Needle with 22G Whitacre

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ABSTRACT

Background: Spinal anaesthesia is safe and effective alternative to general anaesthesia.

Aim: To compare 25G Quincke spinal needle with 22G Whitacre needle for the frequency of post dural puncture headache.

Study Design: Randomized controlled trial.

Methods: 200 patients undergoing elective cesarean section requiring spinal anesthesia were included in this study. Divided into group A (Quincke) and group B (Whitacre) by using lottery method. Each group comprised of 100 patients. Bio data of all patients were noted and informed consent was taken. In operation theater 0.9% Saline (10 ml/Kg) given before spinal anaesthesia with 18G cannula. Subarachnoid injection was given at L₃ – L₄ level with hyperbaric bupivacaine (0.75%) in sitting position and dose was 1.5 ml.

Results: Mean age in both groups was 29.34 (SD 5.20) and distribution of post dural puncture headache in group A was 23% and in group B it was 8%.

Conclusions: fewer incidences of headache with Whitacre needle as compare to Quincke needle.

Keywords: Spinal Anaesthesia, Quincke spinal needle, Whitacre needle, post dural puncture headache.

INTRODUCTION

Caesarean section is a lifesaving procedure¹. Caesarean section can be performed both in general and spinal anaesthesia². In some hospitals spinal anaesthesia is preferred due to avoiding of unanticipated difficult intubation which is a major concern³. Spinal anaesthesia is easy to perform and cheap as compare to general anaesthesia⁴. Postdural puncture headache is a complication of spinal anaesthesia which occurs within 24-72 hours after spinal anaesthesia⁵. It is due to leakage of cerebro spinal fluid⁶. Different factors influence it, like needle size, direction of bevel and shape^{7,8}. The incidence is high with different type of needles⁹.

MATERIAL AND METHODS

After approval by research and ethics committee, the study was carried out and 200 patients undergoing elective cesarean section were included. Informed consent was taken. Standard II monitoring was used. Patients were divided in two groups A (Quincke) and B (Whitacre) by lottery method. 100 patients in each group. In operation theater 0.9% saline (10 ml/Kg) given before spinal anaesthesia with 18G cannula. 1.5 ml .75% hyperbaric bupivacaine was administered at L₃ – L₄ level, in sitting position under aseptic condition in subarachnoid space. All patients were placed in supine position after spinal anaesthesia and a wedge was placed under right hip. Level of sensory block was assessed by pin prick prior to incision. Judicious intravenous fluids and injection ephedrine was used to manage hypotension. All the procedures were done by researcher himself and patients were followed for 72 hours for complain of headache. It was a randomized controlled trial and sampling technique

was non-probability convenient. P value less than 0.05 considered significant and for statistical analysis SPSS version 10 was used and we used chi-square test. This study was done in Anaesthesia department of services hospital Lahore in one year.

RESULTS

After the analysis we found that the mean age in both groups was 29.34 (SD 5.20) and post dural puncture headache was observed in 31 patients out of which 23 were from group A and 8 were from group B. P value was .003 which is significant.

Table 1: Descriptive statistics of age (years)

Age (years)	N	200
	Mean	29.34
	SD	5.20
	Minimum	21
	Maximum	40

Table # 2: Distribution of post dural puncture headache (PDPH) in accordance with study group.

PDPH	Study Groups		Total
	Quincke needle	Whitacre needle	
Yes	23(23%)	8(8%)	31(15.5%)
No	77(77%)	92(92%)	169(84.5%)
Total	100(100%)	100(100%)	200(100%)

Chi-square = 8.580

p-value = 0.003 (significant)

DISCUSSION

Among regional anaesthesia techniques, spinal anaesthesia is common¹⁰. The advantages are reliability, dense motor block, rapid onset, simplicity and avoidance of airway complications¹¹. Spinal anaesthesia has different complication and one complication is post dural puncture headache which is associated with type of needle¹². In majority of cases this resolves spontaneously but in some patients headache lasts for months and years¹³⁻¹⁵. With the development of fine gauge spinal needle there is significant

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reduction in post dural puncture headache¹⁶. The study of Turnbull DK and shepherd D concludes that there is no difference in headache by using 25G and 29G Quincke needle as compare to pencil point needle¹⁷. The study of Geurts J has opposite results and he concludes that with decreasing the gauge of needle there is significant difference in post dural puncture headache¹⁸. Similarly the study of de Diego FR et al favors my study and they conclude that Whitacre needles has less incidence as compare to Quincke needle¹⁹. Similarly the study of Vallejo MC et al also favors my study and they concluded that Whitare needle were better than Quincke needles²⁰. In the study of srivastava V et al they concluded that in non-obstetric cases the incidence of post dural puncture headache is same whichever needle is used while in obstetric cases the incidence is more with Quincke needle as compare to Whitacre needle²¹.

CONCLUSION

Type of spinal needle is more important than bore of needle. Whitacre needle has less incidence of post dural puncture headache as compare to Quincke needle.

REFERENCES

1. Latif R, Rafique S, Ashfaq M, Yasmeen T, Javaid S, Parveen N et al. An Analysis of prevalence and indication of caesarean section in primigravida. *Pak J Med Health Sci*; 2017; 11(1) 9-11.
2. Hussain U, Tahir A, Javaid Y, Nazeer T, Hussain R. Patient's preference regarding general or regional anaesthesia for elective cesarean section. *Pak J Med Health Sci*. 2017; 11 (1) 409-410.
3. Dar S, Khan MS, Iqbal F, Nazeer T, Hussain R. Comparison of upper lip bite test with mallampati classification regarding assessment of difficult intubation. *Pak J Med Health Sci* 2017; 11 (2) 767-769.
4. Aziz L, Nazir T, Rana AR, Maan A, Jawaid K, Ahmed I. Comparison of epidural and spinal Anaesthesia for total abdominal hysterectomy. *Esculapio* 2011; 7 (2) 8-12.
5. Srivastava V, Jindal P, Sharma JP. Study of post dural puncture headache. *Middle East J Anaesthesiol* 2010; 20 (5): 709-717.
6. Nath G, Subrahmanyam M. Headache in the parturient. Pathophysiology and management of post dural puncture headache. *J Obstet Anaesth Crit care*. 2011; 1 (2) 57-66.
7. Alam M, Raheen M, Iqbal K, Chowdhury M. Headache following spinal anaesthesia: A review on recent update. *J Bangladesh Coll Phys Surg* 2011; 29 (1) 17-18.
8. Lavi r, Rowe J, Avivi I. Lumbar puncture: it is time to change the needle. *Eur J neurol* 2010; 64 (2): 108-13.
9. Shaikh JM, Memon A, Memon MA, Khan M. Post dural puncture headache after spinal anaesthesia for caesarean section: A comparison of 25G Quincke, 27G Whitacre spiral needle. *J Ayub Med Coll Abbottabad* 2008; 20 (3): 11-13.
10. Dar TH, Hussain R, Nazeer T, Younis M, Asim MA, Ali M. Effect of different concentrations of bupivacaine on level of subarachnoid block. *Pak J Med Health Sci* 2013; 7 (1) 169-171.
11. Younis M, Iqbal M, Nazir T. Efficacy of bolus administration of ephedrine and phenylephrine for maintenance of blood pressure during spinal anesthesia. *Pak J Med Health Sci*. 2012; 6 (4) 945-948.
12. Kinder RA. Paediatric regional anaesthesia "what makes a difference". *Anaesthesiology* 2002; 16 (2): 159-74.
13. Borum SE, Naul LG, Mcleskey CH. Postpartum dural venous sinus thrombosis after postdural puncture headache and epidural blood patch. *Anaesthesiology* 1997; 86: 487-90.
14. Eerola M, Kaukinen L, Kaukinen S. Fatal brain lesion following spinal anaesthesia. Report of a case. *Acta Anaesthesiologica Scandinavica* 1981; 25 (2): 115-116.
15. Reynolds F. Dural puncture and headache. *BMJ* 1993; 306 (6882): 874.
16. Hunt CO, Naulty JS, Bader AM, Hauch MA, Vartikar JV, Datta S. et al. Perioperative analgesia with subarachnoid fentanyl bupivacaine for cesarean delivery. *Anaesthesiology*. 1989; 71 (4): 535-40.
17. Turnbull DK, Shepherd D. Post dural puncture headache. Pathogenesis, prevention and treatment *BJA* 2003; 91 (5) 718-729.
18. Geurts J, Haanschoten M, Wijk R, Kraak H, Besse T. post dural puncture headache in young patients. A comparative study between the use of 0.52 mm (25G) and 0.33 mm (29G) spinal needle *Acta Anaesthesiologica Scandinavica*. 1990; 34 (5): 350-353.
19. De Diego FR, Tisner ML, Cabrerizo TP, Sanjoaguin MT, Comparison of two 27G caliber needles for spinal anesthesia study of 1555 patients. *Rev Esp Anesthesiol Reanim*. 2003; 50 (4): 182-187.
20. Vallejo MC, Mandell GL, Sabo DP, Ramanathan S. Postdural puncture headache; a randomized comparison of five spinal needles in obstetric patients. *Anesthesia & Analgesia*. 2000; 91 (4): 916-20.
21. Srivastava V, Jindol P, Sharma P, Sharma J. Study of post dural puncture headache with 27G Quincke & Whitacre needles in obstetrics / non obstetrics patients. *Middle East Anaesthesiol* 2010; 20 (5): 709-717.