

A Comparative Study of Spinal Anaesthesia in Hypertensive and Non Hypertensive Patients

AWAIS ANWAR¹, SAMRA HAFEEZ^{2*}, RAZIA RIZWAN³

ABSTRACT

The aim of the current study was to compare the spinal anaesthesia induced fall in blood pressure in normotensive and hypertensive patients. In the current study 86 individuals were selected from Jinnah hospital, Lahore. 56 were male and 30 were female ranging age from 21 to 70 years old. Means in systolic 119.31±38.21, 136±22.01 and diastolic 72.19±24.65, 91.58±3.66 were noted respectively in non-hypertensive and hypertensive patients. The present study showed that spinal anaesthesia created fall in blood pressure in both hypertensive and non-hypertensive patients including.

Keywords: Spinal anaesthesia, blood pressure, hypertensive, systolic, diastolic

INTRODUCTION

Anaesthesia is basically divided in to two categories one is general anaesthesia and second is regional anaesthesia while second category further subdivided into spinal anaesthesia, epidural anaesthesia and caudal anaesthesia (Emmett *et al.*, 2001). Spinal anaesthesia is a medical technique through which medicines are given to the numb parts of body to block pain. Spinal anaesthesia is given through shots in or around the spine. Procedure is adopted mostly in the belly, legs, or feet (Kleinman and Mikhail, 2006). It is observed that human body remains in uncomfortable position during this procedure. It has been observed that spinal anaesthesia has lower systemic side effects than general anaesthesia (Aya *et al.*, 2005). Spinal anaesthesia also called spinal block which is given by the needle tip to the spinal. Recently it is concluded that spinal anaesthesia is a better technique of anaesthesia for cesarean delivery and other surgical procedures (Parameshwara 2001). Different studies reported that spinal anaesthetic technique create effects on blood pressure of an individual how are operated (Nightingale and Marstrand 1981). Hypotension may occur as a side effect of this anaesthetic technique. Researchers described that the blood pressure decreased because of cardiac sympathetic nerve blockage during high spinal anaesthesia (Singla *et al.*, 2006).

Hypertension is a major health problem in both developing and non-developing countries. Hypertension is an important risk factor for

cardiovascular and cerebrovascular diseases. Spinal anaesthesia is very effective and most useful anaesthetic technique for lower abdominal, pelvic and lower limb surgery. Spinal anaesthesia causes hypotension due to blockade of sympathetic out flow (Singla *et al.*, 2006).

MATERIAL AND METHODS

This study was conducted in General surgery, Urology, Orthopedics and Gyne operation theaters in Jinnah Hospital Lahore. In the current study 86 individuals were selected. 56 were male and 30 were female. 36 patients were of 21-40 years of age while 50 patients were of 41-70 years old. Blood pressure was recorded for comparison.

RESULTS

Eighty six patients were selected for this study from general surgery, orthopedics, urology and gynae wards. They all received spinal anaesthesia for different types of surgeries. Out of 86 patients 56 were male and 30 were female (Table-2). According to age distribution 36 patients were between 21-40 years and 50 patients were between 41-70 years (Table-1) with mean age of 41.86 and 58.13 years respectively. Out of 86 patients 50 patients were hypertensive while 36 were non hypertensive (Table-3). Significant fall in blood pressure was observed in the patients. Means in systolic 119.31±38.21, 136±22.01 and diastolic 72.19±24.65, 91.58±3.66 were noted respectively.

Table 1: Age distribution (n=86)

Age(in years)	n	%age
21-40	36	41.86
41-70	50	58.13

¹Department of Physiology, FMH College of Medicine & Dentistry, Lahore, Pakistan.

²Department of Biochemistry, Amnainayat Medical College, Near Faizpur Interchange M2, Sheikhpura.

³Dept of Physiology, Independent Medical College, Faisalabad.

*Corresponding author: SamraHafeez (samraisrar@hotmail.com)

Table 2: Gender distribution (n=86)

Gender	n	%age
Male	56	65.11
Female	30	34.88

Table 3: Comparison of spinal anesthesia in non-hypertensive and hypertensive patients (n=86)

Spinal Anesthesia	Individuals	Systolic	Diastolic
Fall in BP	Non-hypertensive n=36	119.31±38.21	72.19±24.65
	Hypertensive n=50	136±22.01	91.58±3.66

DISCUSSION

Spinal anaesthesia introduced by August Bier 1898 and it was first major regional technique in clinical practices. Spinal anaesthesia is very simple and has number of medical uses especially in operating conditions. Spinal block is usually a single shot technique. It is observed by different studies that most common complication created with spinal anaesthesia is hypotension (Dyer *et al.*, 2003). But on the other hand spinal anaesthesia provides more health benefits during surgery like reduced blood loss, better operating conditions, minimal effects on arterial O₂ and CO₂ tensions of the patient etc.

In the present study it has seen that fall in blood pressure was 20(38%) in normotensive while 35(68%) in hypertensive patients of age range 21-70 years with mean values of systolic 119.31±38.2 and diastolic 72.19±24.65, 136±22.01, 91.58±3.66 respectively. From the results of this study it had concluded that hypotension is more common in patients how receiving spinal anaesthesia. The study is correlated by another research conducted by NganKee *et al.*, 2004 and concluded the same results. Current study showed that isobaric bupivacaine spinal anaesthesia produced a more marked hypotensive effect in the hypertensive than in

normotensive patients. The results of this study are same like in the study of (Greene and Brull., 1993).

CONCLUSION

The present study showed that spinal anaesthesia created fall in blood pressure in both hypertensive and non-hypertensive patients.

REFERENCES

1. Aya AG, N Vialles, F Tanoubi, R Mangin, JM Ferrer JM and C Robert (2005). Spinal anaesthesia-induced hypotension: a risk comparison between patients with severe preeclampsia and healthy women undergoing preterm cesarean delivery. *Anesth Anal*; 101: 869 –75.
2. David L (2000). Spinal, epidural and caudal anaesthesia. In: *Anesthesia 5th ed.* Ronald D Miller, editor. Philadelphia: Churchill Livingstone: p. 1496-506.
3. Dyer RA, J Farbas and GJ Torr (2003). Prospective, randomized trial comparing general with spinal anaesthesia for cesarean delivery in preeclamptic patients with a nonreassuring fetal heart trace. *Anesthesiology*; 99:561–9.
4. Emmett RS, AM Cyna, M Andrew and SW Simmons (2001). Techniques for preventing hypotension during spinal anaesthesia for caesarean section. *Cochrane Database Syst Rev*; (3):CD002251.
5. Greene NM and SJ Brull (1993). *Physiology of spinal Anaesthesia* Baltimore, Williams and Wilkins; 85-199.
6. Kleinman W, GE Mikhail, MS Murray, MJ and M Mikhail (2006). *Regional anaesthesia & pain management. Clinical anaesthesiology.* New York: Lange Medical Books/McGraw-Hill; p. 289-323.
7. NganKee WD, KS Khaw and FF Ng (2004). Comparison of phenylephrine infusion regimens for maintaining maternal blood pressure during spinal anaesthesia for caesarean section. *Br J Anaesth*; 92:469 –74.
8. Nightingale Pj and T Marstrand (1981). Subarachnoid anaesthesia with bupivacaine for orthopedic procedures in the elderly. *Br J Anaesth*; 53: 369-371
9. Parameshwara G (2001). Spinal, epidural to combined spinal epidural analgesia. *Indian J Anaesth*; 45(6): 406.
10. Singla D, S Kathuria, S Singh, TK Kaul, S Gupta and Mamta (2006). Risk factors for development of early hypotension during spinal anaesthesia. *J Anaesth Clin Pharmacol*; 22(4): 387-93.