

COMPARING EFFECTIVENESS OF SPINAL ANAESTHESIA IN LOWERING RISKS IN HIP REPLACEMENT VERSUS GENERAL ANAESTHESIA: A TERTIARY CARE HOSPITAL STUDY IN RAJASTHAN

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Abstract

Background: The body is a complex system made up of different parts. The hip joint is one of the most important joints in the body. It allows us to move our legs and sit down. When the hip joint is impaired, it can cause pain and make it difficult to move around. Fractures are broken or cracked bones that can happen in many different places in the body. Fractures can be very serious and sometimes fatal if they are not treated immediately. To check whether spinal anaesthesia outperforms general in terms of intra and post operative complications in persons undergoing hip repair surgery. **Materials and Methods:** A total of 59 patients were enrolled in the study after they met the inclusion criteria. Comparison was made between the two groups which differed on the basis of type of anaesthesia used during the surgery. **Result:** 40 patients, out of the total underwent surgery with general anaesthesia while the others were operated using spinal. No superiority of spinal anaesthesia was observed among the two groups. **Conclusion:** Choice of anaesthesia in operation of hip repair does not alter the prognosis.

INTRODUCTION

A hip fracture is a serious injury with potentially fatal implications. Advancing age increases the risk of hip fracture. Due to the deterioration of bones with age, risk is increased (osteoporosis). The most frequent cause of hip fracture in older individuals is falling, which is also made more likely by taking many drugs, having trouble seeing, and having balance issues. Physical therapy is nearly often followed by surgical treatment or replacement for a hip fracture. A hip fracture can be avoided by maintaining bone density and avoiding falls.^[1]

Various factors have found to be associated with increased risk. People with age over 65 are more likely to sustain a hip fracture. Age causes bones to deteriorate, lose strength, and become more fragile. Elderly persons are more likely to experience mobility and balance issues, which can result in a fall. Older women account for about 75% of hip fractures. With menopause, women lose bone mass. It is more common for weak bones to break. Hip fractures are more common in people who lead sedentary lifestyles. Also, excessive alcohol consumption raises your chance of fracture by weakening the bones. Certain drugs make an individual more likely

to trip and fall. You risk falling over if you take medications that make you drowsy or that lower blood pressure. See your doctor for advice on how to use these medications safely. Some other risk factors include osteoporosis, poor general health with low calcium, vitamin D, and other nutrients. Dementia and Parkinson's disease are also two diseases that raise the chance of fall.^[2]

Patients undergoing hip fracture surgery have a variety of anaesthetic options, although spinal or general anaesthesia are the two that are most frequently in practice. Given the unfamiliar and frequently frightening operating room atmosphere, one of the key advantages of a general anaesthesia is the patient's lack of awareness or memory of the surgery. This could potentially boost patient confidence.^[3]

The avoidance of neurologically active medications, a potential decrease in early delirium, and reduced intraoperative hypotension are all potential advantages of spinal anaesthesia.^[3]

Anaesthesia decisions vary from patient-to-patient. Ideally patients should be given the option between general and spinal anaesthesia after being informed of the advantages and disadvantages of each. In

reality, this decision-making is lies with the anaesthetist.

MATERIALS AND METHODS

Study was designed to follow up the patients who underwent hip repair surgery during the study period of January 2022 to August 2022. Study place was Dr. SS Tantia Medical College, Hospital and Research Centre in Sriganganagar, Rajasthan. Consent was taken and all the patients who fulfilled the inclusion criteria were included in the study. A total of 59 patients were enrolled out of which 19 underwent the hip surgery with choice of spinal anaesthesia while the majority 40 patients were those who chose general anaesthesia. Outcome variables included mortality, need for blood transfusion, postoperative infections, cardiac failure, deep vein thrombosis (DVT), pulmonary embolism (PE), myocardial infarction, cerebrovascular accident, wound haemorrhage, renal failure, and gastrointestinal

haemorrhage as assessed in a similar study.^[4] Data collected during the study was entered in MS Excel and was analysed using MS Excel and SPSS (Statistical Package for Social Sciences).

RESULTS

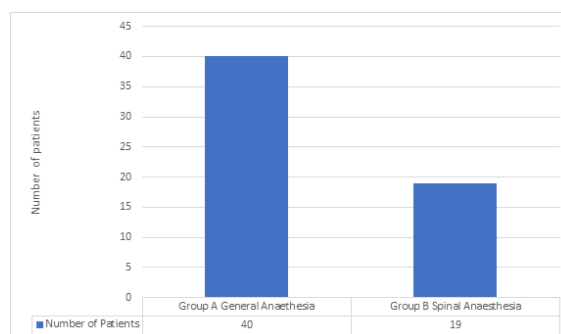


Figure 1: Distribution of study participants under the two study groups.

Table 1: Comparison of Socio Demographic Characteristics among the two groups of study participants

		General anesthesia (n=40) Group A	Spinal anesthesia (n=19) Group B	p value
Age (mean years)		67.52	63.21	0.6662
Gender	Male	18	8	0.1123
	Female	22	11	
H/O COPD	Present	6	5	0.678
H/O Heart Disease	Present	6	6	0.992
H/O Diabetes Mellitus	Present	4	3	0.852
H/O CKD	Present	2	1	0.635
Smoking Habit	Present	13	11	0.478
Alcohol Consumption	Present	12	9	0.888

H/O = History of, Group A= Operated under general anaesthesia, Group B= Operated under spinal anaesthesia.

Out of the total study participant majority were the ones who underwent the surgery under general anaesthesia. (Figure 1) Among the two groups it was observed that majority of the study participants were in the age group of >65 years the range was 54 to 79 years across both groups. Mean age among the general A was 67.52 years where as in the Group B it was 63.21 years. Females were more in number in both the groups with majority of 55% in group A and 58% in group B. History of co-morbidities was recorded and the distribution among the study participants was similar $p > 0.05$. [Table 1]

Table 2: Comparison of outcome variable across the two group of study participants.

	General anesthesia (n=40) Group A	Spinal anesthesia (N=19) Group B	p value
Mortality	1	0	>0.992
Need for blood transfusion	3	1	>0.222
Postoperative infections	4	3	>0.583
Renal Failure	0	0	NA
Hemorrhage	1	2	>0.652
CVA	0	0	NA
Embolism	1	0	>0.992
Heart Failure	1	0	>0.992

There was a single mortality reported in the current study. Postoperative infections were equally distributed among the two groups. ($p > 0.05$) No cases of renal failure, cerebro vascular accident was reported among the study participants. [Table 2]

DISCUSSION

It has been anticipated that using regional anaesthesia as the primary anaesthetic strategy will lower the incidence of postoperative problems in patients

undergoing surgery for hip fractures. Regional anaesthesia can be administered by epidural, spinal, or peripheral neural blocking.^[5,6] In a large scale study 5,254 (29%) of the 18,158 patients underwent regional anaesthesia out of which 435 (2.4%) patients

died while hospitalised. By anaesthetic type, there were no differences in the mortality and cardiovascular problems in both types of anaesthesia. Less pulmonary problems occurred in patients who underwent regional anaesthetic (359 [6.8%] vs. 1,040 [8.1%], P 0.005).^[7]

In a systematic review involving meta-analysis, 31 studies (with 3231 individuals) no significant difference was found in mortality at one month between the two anaesthetic procedures based on 11 studies with 2152 participants: risk ratio (RR) 0.78, 95% confidence interval (CI) 0.57 to 1.06; I² = 24% (fixed-effect model).^[8]

The major outcome of this and in other trials comparing spinal anaesthesia to general anaesthetic for hip-fracture surgery have been based on intraoperative events and in-hospital complications. These did not look for differences in outcomes after hospital discharge.^[9-11]

A study with a larger sample and multi-centric approach will be useful for a better prediction of the post discharge comparison among the two.

CONCLUSION

Regarding the outcome measure explored in the study, following the hip-fracture surgery in study participants, spinal anaesthesia did not outperform general anaesthesia. Both had a comparable rate of postoperative complications.

REFERENCES

1. Mayo Clinic (2018). Hip fracture - Symptoms and causes. [online] Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/hip-fracture/symptoms-causes/syc-20373468>.
2. Cleveland Clinic (2019). Hip Fracture & Broken Hip | Cleveland Clinic. [online] Cleveland Clinic. Available at: <https://my.clevelandclinic.org/health/diseases/17101-hip-fracture>.
3. Morgan L., McKeever T.M., Nightingale J., Deakin D.E. and Moppett I.K. Spinal or general anaesthesia for surgical repair of hip fracture and subsequent risk of mortality and morbidity: a database analysis using propensity score-matching. *Anaesthesia* 2020;75:1173-1179.
4. Morgan, L., McKeever, T.M., Nightingale, J., Deakin, D.E. and Moppett, I.K. (2020). Spinal or general anaesthesia for surgical repair of hip fracture and subsequent risk of mortality and morbidity: a database analysis using propensity score-matching. *Anaesthesia*, 75(9), pp.1173–1179.
5. Beaupre LA, Jones CA, Saunders LD, Johnston DW, Buckingham J, Majumdar SR: Best practices for elderly hip fracture patients: A systematic overview of the evidence. *J Gen Intern Med* 2005; 20:1019–25.
6. Neuman MD, Archan S, Karlawish JH, Schwartz JS, Fleisher LA: The relationship between short-term mortality and quality of care for hip fracture: A meta-analysis of clinical pathways for hip fracture. *J Am Geriatr Soc* 2009; 57:2046–54.
7. Mark D. Neuman, Jeffrey H. Silber, Nabil M. Elkassabany, Justin M. Ludwig, Lee A. Fleisher; Comparative Effectiveness of Regional versus General Anesthesia for Hip Fracture Surgery in Adults. *Anesthesiology* 2012; 117:72–92.
8. Guay J, Parker MJ, Gajendragadkar PR, Kopp S. Anaesthesia for hip fracture surgery in adults. *Cochrane Database Syst Rev*. 2016 Feb 22;2(2):CD000521.
9. Biboulet P, Jourdan A, Van Haevre V, et al. Hemodynamic profile of target-controlled spinal anesthesia compared with 2 target-controlled general anesthesia techniques in elderly patients with cardiac comorbidities. *Reg Anesth Pain Med* 2012;37:433-440.
10. Juelsgaard P, Sand NP, Felsby S, et al. Perioperative myocardial ischaemia in patients undergoing surgery for fractured hip randomized to incremental spinal, single-dose spinal or general anaesthesia. *Eur J Anaesthesiol* 1998;15:656-663.
11. Parker MJ, Griffiths R. General versus regional anaesthesia for hip fractures: a pilot randomised controlled trial of 322 patients. *Injury* 2015;46:1562-1566.