

Assessment of Complications Associated with Various Anesthetic Techniques in Patients Undergoing Hip Replacement Surgeries: A Retrospective Study

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Abstract

Background: Hip fracture in the elderly is a very common fracture, which mainly requires surgical treatment. Hence; we planned the present study to assess various complications associated with various anesthetic techniques in patients undergoing hip replacement surgeries. **Subjects and Methods:** Analysis of data files of a total of 160 patients was done. Retrieval of complete demographic and clinical data of all the subjects included in the present study was done. Recording of following parameter was done: Form of anaesthetics technique, Surgical procedure duration, and Fluid type and amount administered. Complication of the results was done by SPSS software. **Results:** Most commonly observed complications observed in the present study were hypotension, bleeding, embolism and cardiac arrest. Non- significant results were obtained while comparing the occurrence of complications among different study groups. **Conclusion:** Various types of anaesthetics techniques can be used with equal effectiveness among patients undergoing Hip replacement surgery.

Keywords: Anesthetic, Complications, Hip replacement surgery.

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Introduction

Hip fracture in the elderly is a very common fracture, which mainly requires surgical treatment.^[1] This fracture is associated with various morbidity and mortality. Surgery for hip fracture is performed using either general anesthetic administration or neuraxial (spinal and epidural) method. Under general anesthesia, the patient becomes completely anesthetized by using injectable drugs or certain respiratory gases.^[2-4] In this method, the patient does not have the ability to breathe during anesthesia and the artificial respiratory machine is used to breathe. Recent studies on comparative effectiveness utilizing population based data have given us a novel insight on anesthetic practice and outcome, showing favorable results in the usage of regional vs. general anesthesia.^[5,6] Hence; under the light of above mentioned data, we planned the present study to assess various complications associated with various anesthetic techniques in patients undergoing hip replacement surgeries.

Subjects and Methods

The present study aimed for assessing the complications associated with various aesthetic techniques in patients undergoing hip replacement surgeries. For the present study,

ethical clearance was obtained from the ethical committee of the institution. Analysis of data files of a total of 160 patients was done. Exclusion criteria for the present study included:

- Subjects in which follow-up records were missing,
- Subjects with presence of any form of co-morbid condition,
- Diabetic and hypertensive subjects

Retrieval of complete demographic and clinical data of all the subjects included in the present study was done. Recording of following parameter was done;

- Form of anaesthetics technique
- Surgical procedure duration,
- Fluid type and amount administered

Complication of the results was done by SPSS software. Chi square test was used for evaluation of level of significance.

Results

[Table 1 and Figure 1] show the demographic data. Mean age of the patients of the general anesthesia, combined spinal epidural anesthesia, Spinal, and Lumbar plexus block was 65.8 years, 66.8 years, 69.2 years and 63.3 years respectively. [Table 2 and Figure 2] show the complications. Most commonly observed complications observed in the present study were hypotension, bleeding, embolism and cardiac arrest. Non- significant results were obtained while

comparing the occurrence of complications among different study groups.

Table 1: Demographic data.

Type of anesthesia	Number of subjects	Mean age (years)	Gender		Mean weight (Kg)
			Males	Female	
General anesthesia	40	65.8	25	15	66.8
Combined spinal epidural anesthesia	40	66.8	29	11	70.2
Spinal	40	69.2	26	14	64.8
Lumbar plexus block	40	66.3	27	13	69.9

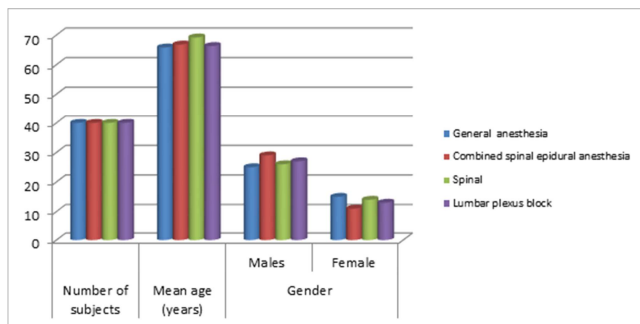


Figure 1: Demographic data

Table 2: Complications

Type of anesthesia	Hypotension		Bleeding		Embolism		Cardiac arrest	
	n	%	n	%	n	%	n	%
General anesthesia	15	10	8	5.33	5	3.33	2	1.34
Combined spinal epidural anesthesia	10	6.67	7	4.67	4	2.67	1	0.67
Spinal	8	5.33	10	6.67	6	4	2	1.34
Lumbar plexus block	11	7.33	9	6	4	2.67	1	0.67
p- value	0.58		0.81		0.77		0.36	

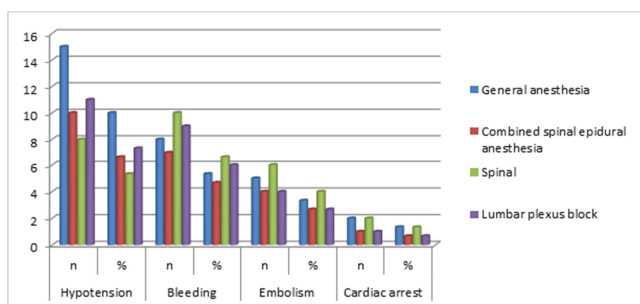


Figure 2: Complications

Discussion

The increasing demand for hip arthroplasties over the last decades has sparked the creation of new and innovative anesthetic techniques and analgesic pathways with the goal to support best possible outcomes among this frequently elderly patient population. As a result, today different

perioperative treatment pathways are available to physicians and their patients. In this context, the focus has shifted to techniques based on regional anesthetic and analgesic techniques. This trajectory has been fueled by a number of advantages including effective, long-lasting and focused pain control, decreased need for systemic analgesics and earlier mobilization.^[5-7]

Total hip replacement is procedure characterized by great perioperative disturbances including cardiovascular complications, high incidence of thromboembolic complications, possible significant perioperative blood loss, possible bone cement effect and high level of postoperative pain. Anesthetic assessment of patients include preoperative preparations, intraoperative and postoperative care.^[8-10]

[Table 1] shows the demographic data. Mean age of the patients of the general anesthesia, combined spinal epidural anesthesia, Spinal, and Lumbar plexus block was 65.8 years, 66.8 years, 69.2 years and 63.3 years respectively. Alecci V et al compared the efficacy of the minimally invasive direct anterior approach and the standard lateral approach to total hip replacement surgery by observing intra- and perioperative outcomes. The authors conducted a retrospective study on a group of 419 consecutive patients undergoing total hip replacement for coxarthrosis. The patients were divided into a first group (A) of 198 patients who had surgery with the standard lateral approach, and a second control group (B) of 221 patients who had the same procedure via the minimally invasive direct anterior approach. Assessment of the two groups considered the following perioperative parameters: length of the surgical procedure, intraoperative complications, intra- and postoperative blood loss, postoperative pain, postoperative nausea and vomiting, length of stay, and type of discharge. The two groups were homogeneous when compared in relation to mean age, sex and body weight. The minimally invasive direct anterior approach was performed within an acceptable time (89 ± 19 min vs. 81 ± 15 min) and with modest blood loss (3.1 ± 0.9 g/dL vs. 3.5 ± 1 g/dL). Patients experienced less pain (1.4 ± 1.5 NRS score vs. 2.5 ± 2 NRS score), and PONV affected only 5% versus 10% of cases. Times to discharge were shorter (7 ± 2 days vs. 10 ± 3.5 days), and 58.4% versus 11.6% of patients were discharged to home. In their study, patients treated with a minimally invasive direct anterior approach had a better perioperative outcome than patients treated with the lateral approach.^[10]

Most commonly observed complications observed in the present study were hypotension, bleeding, embolism and cardiac arrest. Non- significant results were obtained while comparing the occurrence of complications among different study groups. Koç M et al identified surgical and anaesthetic methods applied, intraoperative hemodynamic changes, length of stay in the post-anaesthesia care unit, and postoperative complications. Demographic characteristics, co-morbidities, preoperative laboratory findings, intraoperative findings, and admission or refusal to the intensive care unit of patients who underwent hip replacement surgery between January 2008-December 2010 were enrolled. Out of 500 patients, 33.4% (n=164) were operated under general anaesthesia, 34% (n=170) under combined spinal-epidural anaesthesia, 22.2% (n=111) under spinal anaesthesia, 6.4% (n=32) under combined lumbar

plexus block and sciatic nerve block, and 4% (n=20) under epidural anaesthesia. Mean hospital stay was 7 days in the general anaesthesia group and 5 days in the regional anaesthesia group. American Society of Anesthesiologists (ASA) scores and incidence of co-morbidities were higher in the partial hip replacement group.^[11]

Conclusion

Under the light of above obtained data, the authors conclude that various types of anaesthetics techniques can be used with equal effectiveness among patients undergoing Hip replacement surgery.

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