



## IN DAY COMPARISON OF TWO ANESTHETIC TECHNIQUES WITH OUTCOME CARE SURGERY

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Conflicts of Interest: Nil

### Abstract:

**Introduction:** There are many anesthetic techniques such as general, regional, spinal, epidural, caudal, hypotensive, inhalation, nerve blocks, total intravenous and regional intravenous used for multiple surgical procedures. There is controversial in effect of anesthetic technique on perioperative outcomes. Central neuraxial blocks including epidural, spinal and caudal anesthesia are regional anesthesia techniques. Other use of regional anesthesia techniques including reduced side effects, pain control, improved cardiac and pulmonary function, decreased blood loss and shortened stay in the post anesthesia care unit. In this growing world, day care surgery in the patient being discharged from the hospital on the same day has become popular modality of treatment. In this fast speed of life, adoption of nuclear family need of early return to work, and resumption of daily routine chores to maintain social which have propelled this treatment modality to newer heights. Anesthesia for day-care surgeries may require administration of general, local and regional anesthesia or monitored anesthesia care supplemented with sedation. Availability of newer drugs has contributed in advancements in anesthesia techniques largely to the progress of day-care surgery.

**Aim:** The aim is to compare two anaesthesia techniques for obese patients in day care surgery.

**Material and Method:** This is prospective study which is carried out in Dept. of Anesthesiology at Rohilkhand Medical College and Hospital, Bareilly (UP), during the period of 1 year. All paediatric patients which undergoing circumcisions were included in this study. Patient's queries regarding anesthesia and surgery were sought. Detail history of patients with lab routinely investigation like CBC, Creatine urine R/M etc. 60 Patients in each group with 30 patients not having any responsible adult at their homes were including in this study. Standard monitors SPO<sub>2</sub>, NIBP, ECG and Respiratory rate were attached. Every patient received 500 ml Ringer Lactate IV before surgery. inj. Ondansetron 4 mg, inj. Ranitidine 50 mg i.v. Fentanyl 2 mcg/kg i.v and inj Midazolam 1 mg i.v. 3 minutes prior to induction.

**Results:** All the data were recorded and each of those variables was summarized by mean and standard deviation. Paired t test was applied for comparing the two main groups. p value less than 0.05(p < 0.05) have been considered as statistically significant. As p value is not significant in Mean surgical time and mean anaesthesia time were compared. Induction of anesthesia with Propofol produced a fall in B.P in this study.

**Conclusion:** Nowadays Ambulatory surgery for obese patients is an upcoming field. New technology and methods are developed to improve early recovery and complication free anaesthesia and it also help to developed decrease patient load in hospitals.

**Keywords:** Ambulatory Surgery, Anaesthesia Techniques, Day-care anesthesia, Day-care surgery

## Introduction

There are many anesthetic techniques such as general, regional, spinal, epidural, caudal, hypotensive, inhalation, nerve blocks, total intravenous and regional intravenous used for multiple surgical procedures. There is controversial in effect of anesthetic technique on perioperative outcomes. Central neuraxial blocks including epidural, spinal and caudal anesthesia are regional anesthesia techniques. Other use of regional anesthesia techniques including reduced side effects, pain control, improved cardiac and pulmonary function, decreased blood loss and shortened stay in the post anesthesia care unit<sup>iiiiiiiv</sup>.

Throughout the world in anesthetic and surgical practices recent advances have facilitated the rapid rise in ambulatory surgery. Due to availability of rapid, short acting anesthetic, sympatholytic, analgesic and muscle relaxant drugs as well as improved monitoring device which become possible to minimize the adverse effects of anesthesia and recovery process. In the perioperative care allowed surgeons to perform an increasing array of more invasive surgical procedures on an ambulatory basis<sup>v</sup>.

In this growing world, day care surgery in the patient being discharged from the hospital on the same day has become popular modality of treatment. In this fast speed of life, adoption of nuclear family need of early return to work, and resumption of daily routine chores to maintain social which have propelled this treatment modality to newer heights<sup>vi, vii</sup>.

Anesthesia for day-care surgeries may require administration of general, local and regional anesthesia or monitored anesthesia care supplemented with sedation. Availability of newer drugs has contributed in advancements in anesthesia techniques largely to the progress of day-care surgery<sup>viii</sup>. Nowadays Food habits and sedentary life styles have created a pandemic of obesity. World health statistics 2012 shows that one in six adults is obese. Every hospital is facing

a major obese patient load<sup>ix</sup>. Patients' separation from their homes and family environment and loss of man hours is reduced ambulatory surgery does not depend upon the availability of a hospital bed<sup>x</sup>. The aim is to compare two anaesthesia techniques for obese patients in day care surgery.

## Material and Methods:

This is prospective study which is carried out in Dept. of Anesthesiology at Rohilkhand Medical College and Hospital, Bareilly (UP), during the period of 1 year. All paediatric patients which undergoing circumcisions were included in this study. Patient's queries regarding anesthesia and surgery were sought. Detail history of patients with lab routinely investigation like CBC, Creatine urine R/M etc. patients with alcohol/drug abuse, H/O allergic reactions to any of the drug being used, motion sickness and last 24 hours of surgery use of antiemetic drugs were excluded in this study. 60 Patients in each group with 30 patients not having any responsible adult at their homes were including in this study.

Standard monitors SPO<sub>2</sub>, NIBP, ECG and Respiratory rate were attached. Every patient received 500 ml Ringer Lactate IV before surgery. inj. Ondansetron 4 mg, inj. Ranitidine 50 mg i.v. Fentanyl 2 mcg/kg i.v and inj Midazolam 1 mg i.v. 3 minutes prior to induction. After induction BIS was attached and Continuous capnography was used during the procedure. After the surgery, Propofol infusion was stopped and Sevoflurane was stopped. Total anaesthesia time was recorded from induction to discontinuation of anaesthetics as well as Total surgical time from incision to placement of dressing was also noted.

## Observations and Results:

All the data were recorded and each of those variables was summarized by mean and standard deviation. Paired t test was applied for comparing the two main groups. p value less than 0.05 (p < 0.05) have been considered as statistically significant.

**Table 1: Demographic Data with two groups according to age, weight, height and BMI**

Groups	GROUP A	GROUP B	P value
AGE[ in years]	43.6±17.1	42.5±15.2	0.05
HEIGHT[in cm]	167±2.8	162±5.7	0.626
WEIGHT[in kg]	93±4.2	89.5±3.6	0.639
BMI[kg/m]	33.7±0.35	34.1±1.06	0.57

**Table 2: Duration of Anaesthesia and Surgical Time**

Groups	GROUP A	GROUP B	P value
Mean Anaesthesia time [in minutes]	20.3±6.4	22.02±5.4	0.472
Mean Surgical time [in minutes]	18.3±6.4	18.6±6.4	1

As p value is not significant in Mean surgical time and mean anaesthesia time were compared. Induction of anesthesia with Propofol produced a fall in B.P in this study. Mostly patients were of young age group of age 18 to 55yrs. Subsequently Ringer lactates 500ml were pre loading of every patient before induction.

There was no statistically significant difference in oxygen saturation between these two subgroups at any stage during the study  $p > 0.05$ . Patients in Propofol infusion, group had apnea transiently, which was corrected by controlled although ventilation through LMA.

**Table 3: Data Related To Recovery**

Groups	GROUP A	GROUP B	P value
Response to commands	8.5±1.2	8.3±0.5	0.093
Eye opening time	6.5±0.5	7.3±0.6	0.827
Time to sit up	19.1±0.5	17.5±0.9	0.255
Time to stand up	40.7±1.7	47.0±4.7	0.043
Recovery foll. MASS	62±15.0	56.2±4.8	0.478

Both groups show similar in Recovery profile. In groups A and B were 62±15.0 and 56.2±4.8 minutes respectively when patients for 6 hours in recovery area.

**Discussion:**

From the past 40 years in India also ambulatory anesthesia is being practiced. Problems occur in the first 3-4 hour postoperative period, can be easily resolved and are discharged. According to the study done by Joshi et al patients are at a high risk of perioperative complications, after surgery which may last for several days<sup>xi</sup>. As studied of Janet et al GA with newer anesthetic drugs

allowed an earlier discharge as compared with spinal or epidural anesthesia in newer practice. Anesthetic agents like Propofol, Isoflurane and Sevoflurane and Fentanyl introduction of rapid ultra short acting anesthetic agents facilitates fact tracking for achieve recovery after GA<sup>xii</sup>. Similar study were done by Bharti et al in which compared induction with Propofol group 2-3 mg/kg and maintained with Propofol infusion 50-200mcg/hr. and Sevoflurane group induction with 5-8% and maintenance with Sevoflurane 4% which suggest that rapid recovery can be achieved with both the techniques<sup>xiii</sup>. Bajwa and Bajwa et al study also shows that Propofol does not have any analgesic property<sup>xiv</sup>. Anderson et

al study also shows that obese patients present specific challenges to both surgeons and anesthesiologists who show that obese patients present specific challenges to both surgeons and anesthesiologists<sup>xv</sup>. According to O. Ibraheim et al BIS allows reduction in total amount of anesthetic that patients are exposed to and appears to decrease time for emergence and recovery<sup>xvi</sup>.

In this study achieved MASS recovery score in group A  $62 \pm 15.0$  minutes and group B  $56.2 \pm 4.8$  minutes respectively. Ambulatory surgery resulted in improved patient satisfaction and significant cost savings without compromising patient care. Motsch et al studied in urological and ophthalmic day surgeries early recovery and the return of mental function and psychomotor in the first 60 min after anaesthesia is faster following Sevoflurane than after Propofol<sup>xvii</sup>. Other studied from Tramer et al showed Propofol is not the sole antiemetic and can be used as induction agent alone, because it has short duration of action<sup>xviii</sup>.

### Conclusion:

Nowadays Ambulatory surgery for obese patients is an upcoming field. New technology and methods are developed to improve early recovery and complication free anaesthesia and it also help to developed decrease patient load in hospitals. In this study, Group A having more stable with haemodynamics. In both groups showed recovery profile are almost similar in this study.

### References:

1. W. J. Mauermann, A. M. Shilling, and Z. Zuo, "A comparison of neuraxial block versus general anesthesia for elective total hip replacement: a meta-analysis," *Anesthesia & Analgesia*, vol. 103, no. 4, pp. 1018–1025, 2006.
2. A. J. R. Macfarlane, G. A. Prasad, V. W. S. Chan, and R. Brull, "Does regional anaesthesia improve outcome after total hip arthroplasty? A systematic review," *British Journal of Anaesthesia*, vol. 103, no. 3, pp. 335–345, 2009.
3. A. Casati, B. Borghi, G. Fanelli et al., "Interscalene brachial plexus anesthesia and analgesia for open shoulder surgery: a randomized, double-blinded comparison between levobupivacaine and ropivacaine," *Anesthesia and Analgesia*, vol. 96, no. 1, pp. 253–259, 2003.
4. A. Eroglu, S. Saracoglu, E. Erturk, M. Kosucu, and S. Kerimoglu, "A comparison of intraarticular morphine and bupivacaine for pain control and outpatient status after an arthroscopic knee surgery under a low dose of spinal anaesthesia," *Knee Surgery, Sports Traumatology, Arthroscopy*, vol. 18, no. 11, pp. 1487–1495, 2010.
5. White PF. Ambulatory anesthesia advances into the new millennium. *Anesth Analg* 2000;90:1234-5
6. Association of Anaesthetists of Great Britain and Ireland; British Association of Day Surgery. Day case and short stay surgery: 2. *Anaesthesia* 2011;66:417-34.
7. Bajwa SS, Bajwa SK, Kaur J, Sharma V, Singh A, Singh A, et al. Palonosetron: A novel approach to control postoperative nausea and vomiting in day care surgery. *Saudi J Anaesth* 2011;5:19-24.
8. Gangadhar S, Gopal T, Sathyabhama, Paramesh K. Rapid emergence of day-care anaesthesia: A review. *Indian J Anaesth* 2012;56:336-41.
9. The World Health Statistics (2012). The World Health Statistics report, GENEVA
10. SWAPNET (2013). Anaesthesia; non bariatric surgery in obese patients, June 2013. Statewide Anaesthesia and Perioperative Care Clinical Network [SWAPNET] 1-11. Available: <http://www.health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-395.pdf>
11. Joshi GP (2013). The obese patients for ambulatory surgery, where we draw the lines? *American Society of Anesthesiologist, News Letter Article* 77(8)
12. Janet D Pavlin (1998). Factors affecting discharge time in adult out patients. *Anesthesia and Analgesia* 87 816-26

13. Bharti N, Chari P and Kumar P (2012). Effect of Sevoflurane versus Propofol based anaesthesia, the hemodynamic and recovery characteristics in patients undergoing mirolaryngeal surgery. Saudi Journal of Anaesthesia 6(4) 380-384
14. Bajwa SJS and Bajwa SK (2010). Comparison of two drug combinations in TIVA: Propofol-Ketamine and Propofol-Fentanyl. Saudi Journal of Anaesthesia 4(2) 72-79.
15. Anderson LM (2008). Day care surgery and obesity: A Challenging perspective. British Journal of Anaesthesia.
16. Ibrahim O (2007). Effect of BIS monitoring on postoperative recovery and Sevoflurane consumption among morbidly obese patients, undergoing Laproscopic Gastric Banding. Saudi Journal of Anaesthesia 1(1) 8.
17. Motsch J, Wandel C, Neff S and Martin E (1996). A comparative study of the use of Sevoflurane and Propofol in ambulatory surgery. Der Anaesthetist 45(1) S57-62
18. Tramer M, Moore A and Mc Quay (1997). Propofol anaesthesia and PONV: Quantitative systemic review of randomized controlled studies British Journal of Anaesthesia 78 247-55.