

# Evaluation of Rational Use of Anesthetics in Gynecology Department

Mehraj Fatima<sup>1</sup>, Shubham Babu Gupta<sup>2</sup>, S. Sai Krishna<sup>3</sup>, A. Vandana<sup>4</sup>, Heena Fatima<sup>5</sup>

Malla Reddy Institute of Pharmaceutical Sciences, Maisammaguda, Dhulapally, (Post Via Hakimpet), Secunderabad – 500014

Pulla Reddy Institute of Pharmacy, Annaram(V) Jinnaram (M) Medak District,

MRM Collage of Pharmacy, Chinthapaliguda (V) Ibrahimpatnam(M) RR District -501510

**Abstract:** ***Aim:** To evaluate the rational use of anesthetics being administrated in gynecology department **Methods:** This was a prospective, observational study in which a total of 100 in patients subjected for surgical procedures in gynecology and obstetrics department, admitted in Vijaya mary Hospital & Ram Dev Rao hospital, Hyderabad were included. The study has begun with the approval of ethics committee. **Results:** We assessed 100 cases in gynecology and obstetrics department of which 76 % of the anesthetic administration is as per the guidelines laid by W.H.O where as 24 % of the cases shown deviation. **Conclusion:** The current study revealed that there is inappropriate administration of anesthetics. The most common mistake was Selection of combination of anesthetics which deviated from guidelines. Patient counseling regarding the anesthetics usage is also important.*

**Keywords:** Rational use, Cesarean Section, Anesthetics, Aspiration, Tracheal intubation

## 1. Introduction

Bupivacaine is standard agent agent for extradural analgesia in labour. Adrenaline and opioids added to improve analgesia, reduce the dose of bupivacaine and minimize side effects. The rational use of local anesthetics requires knowledge of its pharmacological properties & technical skills in order to administer spinal anesthetics. The local anesthetic agents commonly employed for regional anesthesia may be classified according to their relative potency & duration of activity into Agents of low potency & short e.g. Procaine & Chlorprocaine Agents of moderate potency & duration e.g. Lidocaine Agents of high potency & long duration e.g. Bupivacaine & etidocaine. Bupivacaine is a long-acting local anesthetic agents. It blocks initiation and transmission of nerve impulses at the site of application by stabilizing the neuronal membrane. The compound is ultimately metabolized in the liver. Depending upon the site of injection and the concentration used, anaesthesia usually lasts 2-4 hours. In general, the onset, duration & quality of regional anesthesia are enhanced by an increase in dose achieved by either an increase in concentration or in the volume of anesthetic properties of the intrinsically more potent & longer acting agents are influenced less by addition of adrenaline, particularly when such agents are employed for central neural blockade of the epidural type. The maximum cumulative safe dose for adults and children of a 0.25% solution of bupivacaine is 1.5 mg/kg. The table provides a general guide to dosage in adults. Smaller dosages should be administered to debilitated, elderly, epileptic and acutely ill patients.

**Spinal Anaesthesia:** A “heavy” solution (0.75% bupivacaine in 8.25% glucose) will provide the muscular relaxation required for Gynecology surgery. Full aseptic technique must be employed for the injection and the patient must be appropriately tilted to ensure safety and the required level of analgesia.

Spinal anaesthesia always causes hypotension as a result of sympathetic blockade. It should never be used in patients with any condition resulting in hypovolaemia. The hypotensive response may largely be averted by preliminary intravenous infusion of 500-1000 ml of physiological saline (9 mg/ml) but blood pressure should always be measured every 2 minutes for at least 10 minutes. Postoperative headache can be prevented by instructing the patient to remain supine for 24 hours.

**Obstetric practice:** Lumbar epidural block has largely replaced caudal epidural block for relief of pain in labour. It requires less local anaesthetic, carries less risk of infection and is readily extended should caesarean section become necessary. Concentrations of bupivacaine greater than 0.5% are contraindicated for this purpose in view of reports of cardiac arrest and maternal death. Maternal blood pressure, fetal heart rate and uterine contractions should be monitored throughout the procedure. Paracervical block is no longer recommended during labour because it results in very high levels of the drug in fetal blood.

**Anaesthetic Procedure:** All patients had an intravenous line with 18-G cannula before arriving in the operating room. Anaesthetic machine, breathing circuits and monitors were properly checked beforehand. Full range of drug and equipment including appropriate size laryngoscope blade, endotracheal tubes and airways were kept in hand. After arrival of patients in the operation theatre a baseline pulse rate, blood pressure, ECG, respiratory rate, SpO<sub>2</sub> were noted. All patients were preloaded with 15 mL/kg of Ringer’s lactate solution over 15 minutes before administering epidural block. An epidural anaesthesia tray was kept ready beforehand. Drugs of the same pharmaceutical brand for the study drugs were used in all patients. The drugs were prepared by an anaesthesiologist who was not involved in the study and the epidural anaesthesia was administered by the same anaesthesiologist in all the patients to minimise any

operational bias. The patients were kept in sitting position. The overlying skin was prepared with spirit- povidone iodine -spirit, followed by antiseptic draping. After proper identification of space, 2 mL of Inj. lignocaine 2% with adrenaline was used to infiltrate the skin and subcutaneous tissue at L2-3 or L3-4 interspace. For epidural anaesthesia, 18-G Tuohy needle was used. Epidural space was identified by loss of resistance to air technique. After negative aspiration test for blood and CSF, a test dose was administered with 3 mL of Inj. Lignocaine hydrochloride 2% with adrenaline and monitoring was done to note any haemodynamic changes indicative of intravascular injection. After ensuring proper epidural placement of the needle tip, the study drug was slowly injected in small increments with repeated aspiration test as per protocol. After placement of study drug, epidural needle was removed; the puncture site was sealed with antiseptic dressing. Monitoring of vital signs was continued throughout the procedure. The patients were made supine. No other analgesic was given to the patients in the intraoperative period. The patients were administered O<sub>2</sub>, @ 3 L/min through face mask. The surgery was allowed after 20 minutes.

## 2. Aim & Objective

- 1) The ultimate goal of research is to facilitate the rational use of anesthetics as per guidelines laid by W.H.O.
- 2) To reduce the side effects associated with anesthetics administration.
- 3) To improve the better selection of combination anesthetics.
- 4) To Assess & improve patients knowledge & its usage thus reducing the Complications & ADR's associated with anesthetics

## 3. Methodology

The study was conducted in the Department of Gynecology & Obstetrics of Ram Dev Rao & Vijaya Mary Hospital Hyderabad, India. The study was designed to be a Prospective, Descriptive and Observational Study and was conducted of six months (i.e. from Nov, 2017 to May 2018). The sample size was 100 patients.

### Inclusion Criteria

Patients with pregnancy undergone cesarean section in Gynecology & Obstetrics, department.

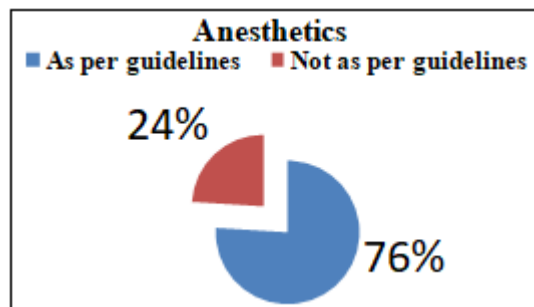
### Exclusion Criteria

Pediatrics, Cardiology, male patients who have previous infections and undergone minor incisions.

### Development of Tool

An extensive study and review of literature helped in the preparation of the tool. A self-prepared CRF was used as the tool for this study. Patient's medical records also were reviewed to collect data.

## 4. Results



Out of 100 female patients, it was found that 76% of anesthetics administered to them were as per the prescribing guidelines laid by W.H.O were as 24% of the cases were deviated and we have also noticed the selection of combination of anesthetics were not ethical.

## 5. Discussion

With the advent of anesthetics and their widespread use, the incidence of complications related to anesthetic usage has increased remarkably. Bupivacaine are the most commonly prescribed drugs in Indian hospitals, and approximately all the prescriptions associated with surgery in the gynecology & obstetrics department uses various classes of anesthetics and we can also see various combinations of anesthetics being administered to the patient depending upon the patients criteria. The major challenge is to control the mortality and morbidity associated with anesthetics post administration were the selection of anesthetics and the dose plays a key role. As a result, appropriate administration should be viewed as an important issue. But the lack of knowledge and improper selection of combination of anesthetics is major drawback in the present health care system.

Hence there is a need of proper implementation of prescribing guidelines for anesthetics in every department in order to prevent ADR's and its post operative complications.

A prospective, descriptive and observational study was conducted to evaluate the rational use of anesthetics as per WHO guidelines, and assess the patient knowledge. The study was carried out in the departments of gynecology and obstetrics. There are abundant data showed deviation of anesthetics. Thus, this indicates improper selection of combination of anesthetics leading to post operative complications.

Overall results of this study show that most participants had moderate to adequate knowledge regarding anesthetic use. They were unaware with about the ADR's and complications of anesthetic use; for example, Allergy, pain, nausea and vomiting, sore throat, anaphylaxis reactions, cardiovascular collapse, respiratory depression etc are some of the possible complications.

## 6. Conclusion

We conclude that, there is a need to emphasize on the rational use of anesthetics in order to avoid the complications and ADR's associated with it and increase awareness among the patients regarding the anesthetic administration. proper selection of class of anesthetics and its dose, administration techniques used while anesthetic administration should be as per the guidelines laid by W.H.O which will decrease the mortality and morbidity rate of anesthetic. Adherence to the guidelines will also ensure the minimization of complications which generally occur post administration of anesthetics it is also important to evaluate the patients parameters prior to the administration of anesthetics as it helps in selection of proper anesthetic its dose and route to be administered to the patient minimizing the risk and complications associated with its use.

## References

- [1] Bonica JJ, Veland K. Heart disease. In: Bonica JJ. Principles and practice of obstetric analgesia and anaesthesia. Vol. 2. Philadelphia: FA Davis 1969:p.167.
- [2] Hunt CO, Naulty JS, Malinow AM, et al. Epidural butorphanol-bupivacaine for analgesia during labor and delivery. *Anesth Analg* 1989;68(3):323-7
- [3] Campbell DC, Zwack RM, Crone LA, et al. Ambulatory labor epidural analgesia: bupivacaine versus ropivacaine. *Anesth Analg* 2000;90(6):1384-9.
- [4] Breen TW, Shapiro T, Glass B, et al. Epidural anesthesia for labor in an ambulatory patient. *Anesth Analg* 1993;77(5):919-24.
- [5] James KS, McGrady E, Quasim I, et al. Comparison of epidural bolus administration of 0.25% bupivacaine and 0.1% bupivacaine with 0.0002% fentanyl for analgesia during labour. *Br J Anaesth* 1998;81(4):507-10.
- [6] Kizilarslan S, Kuvaki B, Onat U, et al. Epidural fentanyl bupivacaine compared with clonidine-bupivacaine for analgesia in labour. *Eur J Anaesthesiol* 2000;17(11):692-7.
- [7] Cascio M, Pygon B, Bennett C, et al. labour analgesia with intrathecal fentanyl decreases maternal stress. *Can J Anaesth* 1997;44(6):605-9.
- [8] Deschamps A, Kaufman L, Backman SB, et al. Autonomic nervous system response to epidural analgesia in labouring patients by wavelet transform of heart rate and blood pressure variability. *Anaesthesiology* 2004;101(1):21-7.
- [9] Chestnut DH, Owen CL, Bates JN, et al. Continuous infusion epidural analgesia during labour: a randomized, double-blind comparison of 0.0625% bupivacaine/0.0002% fentanyl versus 0.125% bupivacaine. *Anaesthesiology* 1988;68(5):754-9.
- [10] Rodriguez J, Abboud TK, Reyes A, et al. Continuous infusion epidural anaesthesia during a labour: a randomized, double blind comparison of 0.0625% bupivacaine/0.002% butorphanol and 0.125% bupivacaine. *Reg Anaesthesia* 1990;15(6):300-3.

- [11] Crawford JS. Principles and practice of obstetric anaesthesia. 3rd edn. Oxford Blackweel Scientific Publication 1972:472-475.

## Author Profile



Assistant Professor **Dr. Mehraj Fatima (Doctor of Pharmacy)**: I am an **Assistant Professor** in the Department of PHARM-D, Malla reddy Institute of Pharmaceutical Sciences, Secunderabad (India). A lecturer of under-graduate and post-graduate courses (Pharm-D) and a research supervisor for higher studies students in the field of pharmacy practice.



**Dr. Shubham Babu Gupta (Doctor of Pharmacy)** from Malla reddy college of pharmaceutical Sciences working as a clinical Research Monitor from Cliniserve India.



**S. Sai Krishna** from Pulla reddy Institute of Pharmacy .Pursuing 4th year in Pharm. D (Doctor of Pharmacy).



**A. Vandana** from Pulla reddy Institute of Pharmacy. Pursuing 4th year in Pharm. D (Doctor of Pharmacy).



**Heena Fatima** pursuing 4th year of Pharm. D ( Doctor of Pharmacy) from MRM College of pharmacy. Special interest in R&D.