A COMPARATIVE STUDY OF HAEMODYNAMIC AND RECOVERY CHARACTERISTICS OF DESFLURANE VERSUS SEVOFLURANE IN PATIENTS UNDER GOING LAPAROSCOPIC SURGERY

INTRODUCTION
Laparoscopic surgery is minimal invasive surgery that is associated with several advantages like smaller scar, reduced bleeding, reduced postoperative pain and infection which contributes to shorter hospital stay. CO2 insufflation will cause increased abdominal pressure and hypercapnia which may contribute to undesirable hemodynamic changes. Goals of any anesthetic technique should be smooth onset of action, adequate intraoperative analgesia and amnesia, good surgical condition, rapid recovery and minimal adverse effects. Use of volatile anesthetic agents that are rapidly eliminated with minimal metabolic breakdown facilitate a faster recovery after general anesthesia. Sevoflurane and Desflurane are volatile anesthetics that has low blood-gas partition coefficient 0.42 and 0.65 respectively. We conducted the study to know which of these two agents contributes to faster recovery and hemodynamics.

CONCLUSION- Desflurane and Sevoflurane provide stable intraoperative hemodynamic, however early and intermediate recovery is significantly faster in Desflurane group than Sevoflurane group.

KEYWORDS: Laparoscopy; Sevoflurane; Desflurane; Hemodynamics; Recovery

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ABSTRACT
Laparoscopic surgeries are minimal invasive surgery very popular now a days as a day care surgery as it provide early mobilization, shorter hospital stay. The main drawback is intra-operative hemodynamic instability due to pneumoperitoneum. Therefore, anesthesiologist must choose anesthetic agent which provide hemodynamic stability and rapid recovery. Inhaled anesthetics with low blood: gas partition coefficient contribute to faster induction and emergence from anesthesia. Both Desflurane and Sevoflurane have low blood: gas partition coefficient 0.42 and 0.65 respectively. We conducted the study to know which of these two agents contributes to faster recovery and hemodynamics.

AIMS OF STUDY
The aim of this study was to compare and evaluate the intraoperative hemodynamic and recovery characteristics after anesthesia with Sevoflurane & Desflurane for patients undergoing laparoscopic surgeries.

MATERIAL AND METHODS
In our prospective, observational study we took approval by hospital ethics committee & a written, informed consent from patient's relatives was taken. Sixty patients of ASA physical status I-II-III, aged >12 years scheduled to undergo laparoscopic cholecystectomy/ appendicectomy surgery under general anesthesia were selected for the study.

All the patients were pre-medicated with intravenous glycopyrrolate 0.004mg/kg, ondansetron 0.16mg/kg, fentanyl 2µg/kg. ECG, NIBP, SpO2 were monitored. Base line hemodynamic parameters were recorded. All the patients were pre-oxygenated with 100% O2 for 3mins. All the patients were induced with inj. Propofol 2.5 mg/kg IV. Patients were intubated with appropriate size of endotracheal cuff tube after giving inj. Succinylcholine 2mg/kg IV. Inj. Vecuronium 0.1mg/kg as a muscle-relaxant. Patients were randomly allocated in two groups according to the type of inhalation agent used.

Group S (n=30): patients maintained on Sevoflurane (1-3%), 50% O2 & 50% N2O.

Group D (n=30): patients maintained on Desflurane (3-6%), 50% O2 & 50% N2O.

The inspired concentration of the volatile anesthetic was adjusted to maintain MAP within 20% of baseline values.

Intraoperative SpO2, NIBP, ECG, Heart rate, EtCO2 were monitored. All the patients were ventilated by close circuit to maintain an EtCO2 of 30-35 mmHg. Rescue bolus dose of Fentanyl citrate 0.5mcg/kg was administered to control acute hemodynamic changes not controlled by the volatile anesthetic agent to response to painful stimuli, to eye opening, to verbal commands, stating name, stating the residential place, able to squeeze fingers, able to lift limb. Modified ALDRETE Score was recorded at the time of arrival to PACU. Time to achieve the ALDRETE score of 9 was also recorded.

RESULT
Both the study group were comparable with respect to Age, Weight, Gender, Duration of anesthesia, and duration of surgery (p>0.05).

• PULSE RATE (MIN)
Properative pulse rate were comparable in both the groups. Even during the induction pulse rate did not differ in two groups. However, we observed increase in pulse rate during intubation in both the groups, this increase in pulse rate was within 20% of baseline value. Intra-operatively pulse rate did not differ in both the groups.

• BLOOD PRESSURE
Rise in blood pressure was observed after intubation. This rise was within 20% of baseline value in both groups.

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Eger EI in his study found quicker recovery for desflurane as compared to sevoflurane for a given duration of anesthesia. (10)

Akkineni Lokesh et al found rapid early recovery with desflurane as compared to sevoflurane. (5)

Delayed recovery after sevoflurane would also be due to effect of its degradation product after prolonged anesthesia (10).

## CONCLUSION

We concluded that both Desflurane and Sevoflurane provided stable intraoperative hemodynamics. However early and intermediate recovery was significantly faster in Desflurane group than Sevoflurane group.

## REFERENCES