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Research Article

## THE IMPACT OF DEXMEDETOMIDINE AND REMIFENTANIL IN INTRAVENOUS ANAESTHESIA (IVAD) IN LAPAROSCOPIC CHOLECYSTECTOMY ACTIVITIES

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**Abstract:**

**Aim:** The purpose was to analyze impact of dexmedetomidine and remifentanil in intravenous anaesthesia (IVAD) in laparoscopic cholecystectomy activities.

**Methods:** This existing research was conducted at Mayo Hospital, Lahore from May 2018 to March 2019. The review involved patients aged 40 years, 19 to 63 years, who underwent elective laparoscopic cholecystectomy. In Group D, IVAT was performed using 160 mixtures of  $\mu\text{g}/\text{kg}/\text{min}$  propofol and  $0.6 \mu\text{g}/\text{kg}/\text{h}$  dexmedetomidine. In Set R, TIVA was achieved through  $160 \mu\text{g}/\text{kg}/\text{min}$  propofol and  $0.6 \mu\text{g}/\text{kg}/\text{min}$  remifentanil. SBP, pulse, SpO<sub>2</sub> and end-tidal CO<sub>2</sub> were noted. Altogether mixtures were completed near end of the medical procedure. Adequate unconstrained breathing, extubation and response to verbal instructions; and Aldrete score  $\geq$  several times, postoperative agony scores and basic limitations in postoperative phase were noted. A tolerant and controlled pain-free siphon was applied in each postoperative patient. All pain relief uses, patients' initial pain relief needs were noted.

**Results:** Intraoperative systolic pulse, diastolic circulatory pressure and pulse degree remained lower overall in the remifentanil set associated to the dexmedetomidine set ( $p < 0.06$ ). The first absence of postoperative pain remained shorter and hemodynamic limitations were basically higher in this group ( $p < 0.06$ ). Postoperative recovery in the dexmedetomidine set was increasingly stable with respect to VAS estimation ( $p < 0.06$ ).

**Conclusion:** Remifentanil provides strong contrasting intraoperative anaesthesia and dexmedetomidine; in any case, dexmedetomidine could be measured in TIVA as the steady postoperative recovery option.

**Key words:** Dexmedetomidine; Remifentanil; Total intravenous anaesthesia; Hemodynamics; Retrieval; Discomfort.

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## INTRODUCTION:

Intravenous anaesthesia was increasingly applied in current times as this is recommended to improve cardiovascular health and allow for rapid and complete recovery. Currently, owing to their short-acting possessions, propofol is favored as a hypnotic operator and remifentanyl is favored as a pain relief specialist in TIVA [1]. Remifentanyl gives a serious absence of pain, squares the physical reactions and thus decreases the movement of the autonomic frame in adjusted and complete intravenous anesthesia procedures. The substantial absence of pain reduces the preconditions inducing intravenous sleep and alters the parity during anaesthesia [2]. Throughout current years, dexmedetomidine was regularly applied in anesthesia methodology. Dexmedetomidine is very profoundly unique, explicit and solid  $\alpha_2$  adrenoceptor agonist ( $\alpha_2$ ) [3]. Despite the fact that here remains sturdy evidence indicating that the  $\alpha_2$  receptor inducement results in the absence of pain in the spinal cord, this is still under examination whether the pain-relieving impacts of dexmedetomidine are primarily related to a narcotic-saving impact. Despite the fact that there are many TIVA contemplations conducted using remifentanyl, the amount of studies contrasting complete intravenous anesthesia and dexmedetomidine with comprehensive remifentanyl is limited [4]. In the present study, current purpose was to examine belongings of dexmedetomidine and remifentanyl on intraoperative hemodynamic replies, recovery profile, postoperative hemodynamic limitations, the use of postoperative pain relief and postoperative agony throughout intravenous anesthesia in laparoscopic cholecystectomy tasks [5].

## METHODOLOGY:

This existing research was conducted at Mayo Hospital, Lahore from May 2018 to March 2019. The review involved patients aged 40 years, 19 to 63 years, who underwent elective laparoscopic cholecystectomy. In Group D, IVAT was performed using 160 mixtures of  $\mu\text{g}/\text{kg}/\text{min}$  propofol and  $0.6 \mu\text{g}/\text{kg}/\text{h}$  dexmedetomidine. After obtaining moral board approval and informed patient consent, we recalled 50 American Society of Anesthesiologists (ASA) I-II danger-characterized cases, aged 19-65 years and planning to undergo elective laparoscopic cholecystectomy, for our randomized controlled clinical investigation. The avoidance criteria were : body weight greater than 100 kg, poor patient compliance with controlled pain absence (CPA) equipment, renal and additionally hepatic deception, cardiovascular deception, ischemic coronary artery disease, rheumatic valve disease, long-term tranquilizing treatment (beta-blockers, analgesics, narcotics or tricyclic antidepressants), mental illness and alcohol compulsion, being a heavy smoker, has taken a crack at any medication requested in the 30

days prior to this survey, has had difficulties during the activity, pregnancy, breathing problems and a background marked by spasms and has not used the test medication under any conditions during the activity.

During the interview, 160 mixtures of propofol  $\mu\text{g}/\text{kg}/\text{min}$  and dexmedetomidine  $0.6 \mu\text{g}/\text{kg}/\text{h}$  were siphoned through two separate siphons at each cannulation destination. After the sixth mixing moment, the impregnation rate of dexmedetomidine was reduced to  $0.4 \mu\text{g}/\text{kg}/\text{h}$ . In Group R patients (who received remifentanyl), endotracheal intubation remained achieved subsequently booster anesthesia using  $2.6 \text{ mg}/\text{kg}$  propofol,  $0.5 \text{ mg}/\text{kg}$  rocuronium,  $1 \mu\text{g}/\text{kg}$  fentanyl. During maintenance, 160 remifentanyl implants at  $\mu\text{g}/\text{kg}/\text{min}$  and  $0.6 \mu\text{g}/\text{kg}/\text{min}$  were siphoned using two separate siphons at two different locations of the venous cannulation. After the sixth ambition moment, remifentanyl Fogging has been reduced to  $0.5 \mu\text{g}/\text{kg}/\text{min}$ . In both collections,  $0.16 \text{ mg}/\text{kg}$  of rocuronium remained controlled when considered significant. After intubation, altogether cases received 100% O<sub>2</sub> and EtCO<sub>2</sub> values remained preserved among 27 and 37 mmHg. The PCA was modified according to a 1 mg bolus portion with 25 min locking intervals. Cases remained then repeated how to apply the PCA and fortified to conduct PCA in case of torment. Systolic blood pressure, diastolic blood pressure, pulse rate, VAS, absolute morphine utilization, and OAA/S (Observer Assessment of Alertness/Sedation) scores remained noted at postoperative intervals of 1, 2, 4, 6, 8, 12, and 24 h. PCAs were maintained associated with patients for 24 hours postoperatively. A potency test remained achieved in addition through an error  $\alpha$  of 0.06 and an intensity of 86%, the investigation required 22 cases in every set. The Mann-Whitney U-test was applied to estimate info stacked on the SPSS programming (rendered 23). The information is reported as arithmetic average  $\pm$  SD through an immensity equal of 0.06.

## RESULTS:

The current review covered the entire of 60 cases who remained altogether ready to complete investigation. With respect to statistical data, there was no distinction made between collections (Table 1). In addition, no distinction was found when considering the length of the medical procedure (Table 1). Distinctions in terms of SSP esteem prior to acceptance, during intubation, and at the first minute of the entry point were not critical; however, distinctions at the fifth, fifteenth, 26th, 36th, and 46th minute remained huge through inferior SSP esteem in the collection of remifentanyl ( $p < 0.06$ ) (Table 2). When considering IAP estimates of collections, IAP estimates of remifentanyl at fifth,

26th, 36th and 46th minutes from the point of entry were essentially inferior ( $p < 0.06$ ) (Table 3).

**Table 1. Demographic information:**

Variable	Set-D	Set-R	p-value
Gender (M/F)	4/19	5/19	1.001
Age (year)	44.6 ± 8.56	46.31 ± 8.02	0.496
Height (cm)	167.21 ± 8.86	169.10 ± 8.91	0.587
Weight (kg)	68.23 ± 8.69	70.31 ± 12.36	0.407

**Table 2: Contrast of intraoperative SAP:**

Time	Set-D	Set-R	p-value
Intubation	154.20 ± 8.86	149.41 ± 14.49	P=0.177
Pre induction	134.80 ± 7.97	132.31 ± 12.09	P=0.064
Incision 1st min	116.72 ± 14.06	127.71 ± 13.78	*P=0.006
Incision 5th min	117.81 ± 14.36	126.85 ± 10.88	P=0.113
Incision 15th minutes	103.61 ± 8.54	116.56 ± 13.02	*P=0.003
Incision 25th minutes	113.91 ± 11.88	123.66 ± 17.58	*P=0.016

**Table 3: Contrast of intraoperative DAP (mmHg):**

Time	Set-D	Set-R	p-value
Pre induction	94.01 ± 4.75	93.40 ± 7.82	P=0.904
Intubation	82.05 ± 7.46	79.51 ± 9.36	P=0.105
Incision 1st min	72.48 ± 6.57	79.86 ± 11.08	*P=0.016
Incision 5th min	73.40 ± 11.79	78.31 ± 8.64	P=0.076
Incision 15th min	65.96 ± 8.91	74.12 ± 8.05	*P=0.004
Incision 25th min	71.46 ± 8.13	76.51 ± 13.05	P=0.102

## DISCUSSION:

The improvements made by the intravenous sedative specialists have been enthusiastically embraced by near-perfect operators. In any case, the complete intravenous anaesthesia system has not been generalized because of the difficulties of its training and some unjustifiable feelings of fear on the part of the facilitators [6]. In existing research, possessions of dexmedetomidine in addition remifentanyl on preoperatively hemodynamic limitations, postoperative recovery and the absence of pain prior to IVAD were considered [7]. Numerous studies have demonstrated that remifentanyl provides hemodynamic adjustment during the intraoperative period. In a review conducted in 1999, remifentanyl and alfentanil were considered in patients undergoing major medical intervention in the stomach. Shüttler et al. found that remifentanyl had a predominantly good hemodynamic quality when compared to alfentanil [8]. In a multi-focal study conducted in 1999, Beverly et al. performed TIVA by directing brifentanyl to 159 patients and alfentanil to 69 patients who underwent laparoscopic medical procedures on foot. In patients who received brifentanyl, there was a significant decrease in response at a cautious entry point and an increase in PAS ( $P=0.028$ ) [9]. The physical response to the addition of trocar and increase in SAP was

considered critical in terms of evidence, while the precondition for the redesigned portion was also considered to be large and measurable. In our investigation, we found a total decrease in HR at the second minute of cutting in the collection of remifentanyl [10].

## CONCLUSION:

Taking all this into account, we accept that remifentanyl provides a powerful intraoperative absence of pain contrast and dexmedetomidine; though, this has rebound impacts owing to their short action profile. Dexmedetomidine provides increasingly steady hemodynamic limitations throughout the retrieval phase, delayed postoperative analgesic properties, reduced narcotic use, and a pleasant postoperative period.

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