

COMPARATIVE STUDY BETWEEN INTRAVENOUS LIDOCAINE AND DEXMEDETOMIDINE INFUSION FOR PREVENTION OF POSTOPERATIVE CATHETER-RELATED BLADDER DISCOMFORT

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Introduction

Annually, about millions of hospital admissions e.g., US receive urinary catheterization. Catheter is a tube system inserted/placed to the body for draining urine for therapeutic or diagnostic purposes, but might cause UTI or urethral scarring. CRBD: burning sensation, stabbing pain, urge to urinate, discomfort on suprapubic region after catheterization. The rate of CRBD ranges 47%-90%.Contributing factors; male sex, open surgeries, previous catheterization, age <50yrs.

Pathogenesis: Activation of muscarinic receptors of cholinergic nerves, catheter triggering afferent nerves of the bladder resulting the release of Ach and involuntary contraction of detrusor muscles. **Treatments;** antimuscarinics, anaesthetics, anti-epileptics, are frequently prescribed. IV dexmedetomidine: selective α_2 adrenergic agonist with sedative, analgesics, antianxiety action without respiratory depression. It prevents CRBD by inhibiting M_3 receptors. IV lidocaine has analgesic, anti-inflammatory and antihyperalgesic properties. Through analgesic and anti-inflammatory activities, it enhances postoperative recovery by opioid sparing and reducing immune alteration. It is assumed IV lidocaine has antimuscarinic properties.

Aim of the work

The primary aim of the present work was to compare between intravenous lidocaine and dexmedetomidine infusion for prevention of postoperative catheter-related bladder discomfort (CRBD).

The secondary aim was to study the effects of these drugs (intravenous dexmedetomidine and lidocaine) on; Intraoperative and postoperative hemodynamics, Postoperative analgesia and Sedation status of the patients.

Patient and Methods

Patient: This prospective, randomized, double blinded, controlled study was carried out on 90 male adult patients with the age between 30-60 years, with the weight range (50-90kg) admitted to “Alexandria Main University hospital”.

All patients were ASA physical status class I and II scheduled for elective major abdominal surgery requiring a urinary bladder catheterization. The procedures were done under general anaesthesia.

Methods: The patients were randomized using closed envelop method into 3 equal groups.

Group L: 50ml lidocaine1% in a 50ml syringe. The patients received a bolus of 0.2 ml/kg lidocaine 1%, 10min. before anaesthesia induction, then maintenance dose of 0.1ml/kg/h.

Group D: Dexmedetomidine was prepared by 1ampoule (200 μ g) added to 48ml of normal saline in a 50ml syringe. The patients received a bolus of 0.2ml/kg infusion, 10min. before anaesthesia induction, the maintenance was 0.1 ml/kg/h.

Group C: The patients received a bolus of 0.2 ml/kg infusion of normal saline prepared in 50ml syringe, 10min. before anaesthesia induction, then maintenance dose of 0.1 ml/kg/h intravenously.

Measurements:

a) **Demographic data**

b) **Bladder discomfort.** It was assessed in PACU, on patient arrival in PACU at 0, 2 hours, then 6 hourly for 48 hours.

c) **Postoperative pain score.** We used the visual analog scale (VAS) to evaluate postoperative pain.

d) **Hemodynamic parameters:**

●Heart rate (b/min).

● Non-invasive arterial blood pressure (mmHg): Mean arterial blood pressure (MAP).

e) **Ramsay sedation scale;** We used Ramsay sedation scale to assess the sedation status of the patient.

Results

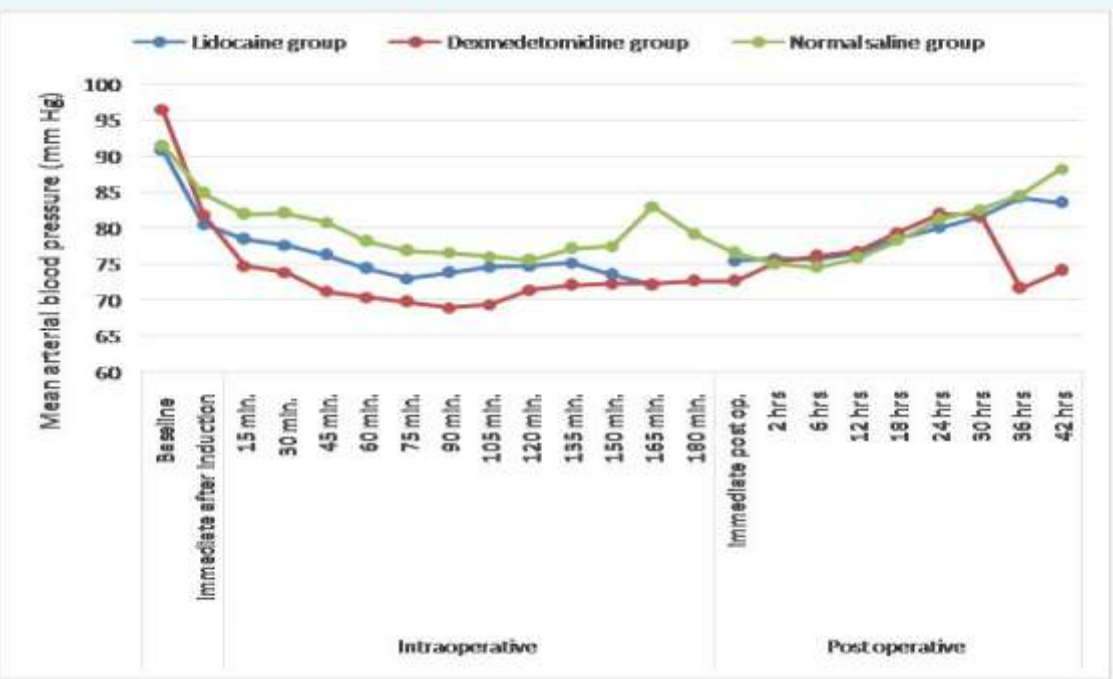


Figure 1: Mean arterial blood pressure in the three studied groups at different period of follow up.

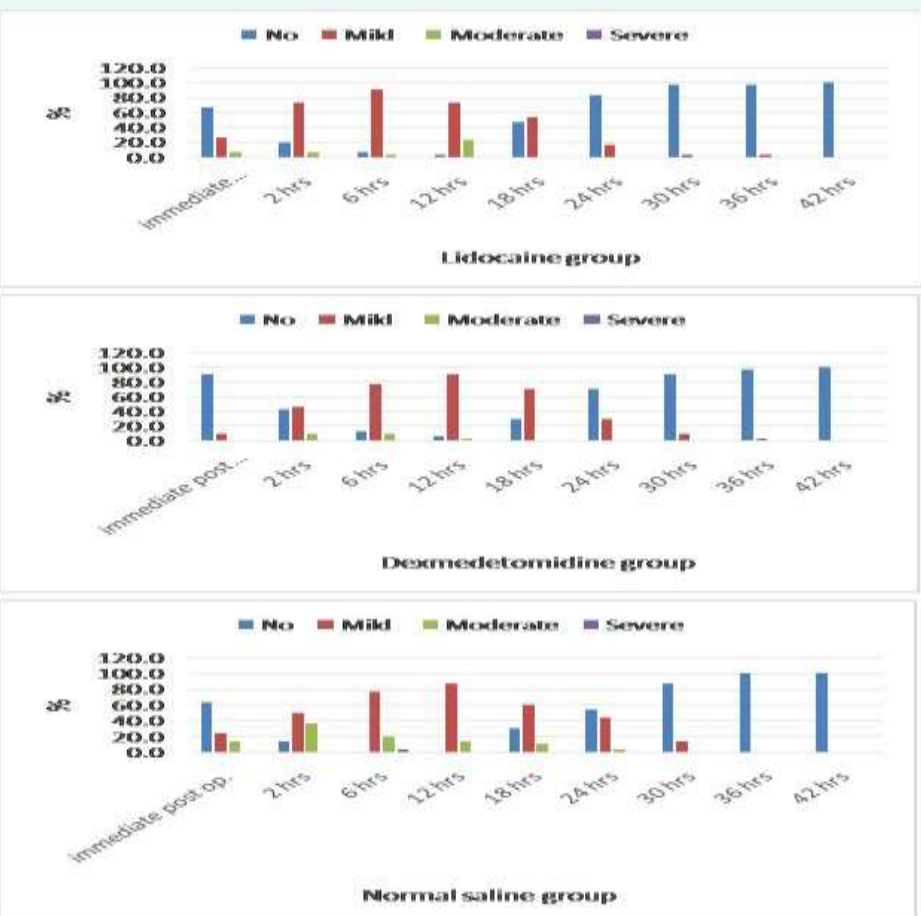


Figure 2: Bladder discomfort in the three studied groups at different period of follow up.

Conclusion

Intravenous dexmedetomidine infusion reduced the incidence of CRBD as well as the additional rescue analgesia requirement for CRBD, in addition to its analgesic properties, iv dexmedetomidine also has hypotensive and sedative properties that play important role during general as well as regional anaesthesia.



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