Intraoperative infusion of dexmedetomidine reduces postoperative analgesic requirements

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Introduction: Dexmedetomidine (Dex) is a highly selective $\alpha 2$ -agonist with sedative and analgesic effects. Dex has analgesic-sparing effects and in addition has not been associated with respiratory depression. These properties make it an ideal perioperative medication for painful surgical procedures.¹

Purpose: This prospective, randomized, double-blind pilot study was designed to assess whether intraoperative infusion of Dex provides effective postoperative analgesia after total abdominal hysterectomy (TAH).

After institutional approval Material of the Study was composed of 22 women who signed informed consent & respected following criteria:	
Inclusion Criteria	Exclusion Criteria
- women planned for regular TAH - ASA I-II 52-95 kg 35-67 y	- Inability to use the PCA device - Renal or hepatic dysfunction - Cardiac failure or valvular heart disease - Long term use of certain drugs (β-blockers, analgesics, sedatives) - Alcohol abuse and heavy smoking

METHODS

- Double-blind
- Randomly assigned to two groups
- Treatment group D (n=11): received Dex $1\mu\text{g}\cdot\text{kg}^{-1}$ iv, 15 min after induction of anaesthesia, followed by a continuous infusion at a rate of $0.4\mu\text{g}\cdot\text{kg}^{-1}\cdot\text{hr}^{-1}$ throughout the operation.
- Placebo group (n=11) received the same bolus volume and infusion of placebo (0.9% saline)
- Induction of anaesthesia was the same for all pts
- Maintenance of anaesthesia with desflurane, $\text{O}_2/\text{N}_2\text{O}$ ($\text{FiO}_2=0.4$) around a BIS of 40.

We recorded:

- Time to extubation,
  - First analgesic request
  - Heart rate (HR)
  - MAP, SAP, DAP; SpO_2
- } intraop. every 15 min & postop. for 48h
- Pts stayed in PACU for 2h, where they received a bolus dose of tramadol when Verbal Rating Pain Score (VRPS) ≥ 4 . Analgesia was followed by the use of PCA with 15 mg tramadol bolus and lock-out 10 min.
- Cumulative tramadol consumption
  - Assessment of pain,
    - at rest VRPS (0-10)
    - in movement Prince Henry Pain Scale (0-4)²
  - Sedation with Ramsay scale (0-4)
  - Nausea with Likert scale (0-3)
- } At 0,15,30,45,90,120 min in PACU and 4,8,16,24,48 h after surgery at the ward

RESULTS AND DISCUSSION

- ✓ Mean age: 50 ± 8.21
- ✓ Mean weight 73 ± 12.59
- ✓ The 2 groups were similar regarding the demographics, the mean time to extubation from anaesthesia, the nausea and sedation scores at all times
- ✓ VPRS in the first 90 min was significantly $\downarrow$ in group D= 2.9 ± 1.8 vs P= 5.9 ± 0.8 (P=0.001, t-test)
- ✓ The time of first analgesic request was significantly $\uparrow$ in group D= $192.45\pm$ vs P= 19 ± 30 min (P<0.001 Mann-Whitney Test)
- ✓ The total tramadol consumption was significantly $\downarrow$ in D at 24 and 48h, 262.2 ± 102 and 336.8 ± 146.6 mg vs 349.4 ± 115 and 485 ± 165 mg in group P respectively.

Conclusion: Continuous i.v. Dex during abdominal hysterectomy significantly reduced postoperative tramadol consumption and postponed the time of first analgesic request.

References

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