

An Observational study on TIVA for day case gynaecological laparoscopic surgery without neuromuscular blocking agents: incidence of side effects.

Authors: M. F. Mallick and A. A.Samaan

Institution: Department Of Anaesthesia, Diana Princess of Wales Hospital, Grimsby.

Introduction: Patients undergoing gynaecological laparoscopic procedures are known to suffer high PONV rates, pain, and haemodynamic instability together with complications from neuro-muscular blocking agents. All of which can result in a poor postoperative experience and lead to a significant number of patients needing overnight admission. We have evaluated an anaesthetic technique of total intravenous anaesthesia (TIVA) using target controlled infusion (TCI) of propofol and remifentanyl with controlled ventilation without neuro-muscular blocking agents in patients undergoing these procedures, to demonstrate TIVA advantages in avoiding these complications.

Methods: This is an observational study of 100 consecutive patients (ASA I & II) admitted for diagnostic laparoscopy or laparoscopic sterilizations. All patients were induced and maintained with Propofol (Target concentration 3-5 mcg ml⁻¹ Marsh model and Target Controlled Remifentanyl (Target concentration 3-5 ng ml⁻¹ Minto model) infusions delivered via Fresenius TCI system. Intra-operatively, all patients received analgesia in the form of intravenous Parecoxib, Paracetamol and Pethidine. Each patient received a prophylactic anti-emetic (Ondansetron 4 or 8 mg) intra-operatively and was ventilated on a LMA (volume control) without the use of neuro-muscular blocking agents. The total dose of Propofol and Remifentanyl used, intra-operative conditions, ease of ventilation, peak airway pressures, mean airway pressures and post-operative complications (PONV, pain, and delay in discharge time) were recorded.

Results: The mean age and weight (\pm SD) of the patients was 31.52 \pm 8.1 years and 59.21 \pm 12.24 kgs respectively. The duration of anaesthesia was 32.85 \pm 5.41 minutes with the mean dose of Propofol being 11.34 \pm 3.41 mg kg/hr and the mean dose requirement for Remifentanyl being 0.23 \pm 0.08mcg/kg/min. All 100 patients were successfully ventilated with LMA without neuro-muscular blockade with the average peak airway pressure recorded (mean \pm SD) at 19.78 \pm 2.23 mmHg.

None of the patients required Atropine or Ephedrine. Postoperatively the mean VAS score was 0.985 \pm 1.25, no haemodynamic instability, and 3% of the patients having PONV. 4 % patients required additional post-operative analgesia before discharge. All 100 patients were discharged the same day.

N = 100	Diagnostic lap. (59)	Lap. Sterilization (41)
Propofol dose(mg/kg/hr)	Average – 12.03 mg/kg/hr	Average – 10.65 mg/kg/hr
Remifentanyl dose (ug/kg/min)	Average – 0.21	Average 0.25
Airway pressures (Pmax)	Average – 19.75mmHg	Average – 19.81mmHg
Ephedrine/Atropine required	0	0
Ventilation problems	0	0
Pain score (VAS)	Average = 0.57	Average = 1.4
PONV	1	2
Same day discharged	100%	100%

Conclusions: We have demonstrated that TIVA with TCI Propofol and TCI Remifentanyl is a safe and effective technique for day-case gynaecological laparoscopic surgery. It has safe haemodynamic profile, avoiding the need for neuro-muscular blocking agents with their potential side effects. It has low PONV rates and with this multi-modal analgesic regime achieved effective pain management.

References:

1. Recovery from day case anaesthesia: comparison of total IV anaesthesia using propofol with an inhalational technique. *British Journal of Anesthesia*, 1992, Vol. 68, No. 4 356-359
2. Anaesthesia in day case laparoscopic female sterilization: a comparison of two anaesthetic methods. *Acta Anaesthesiol Scand*.2004 Aug; 48(7):899-902.
3. Chung E Mulier, JP Scholes, et al. A comparison of anaesthesia using remifentanyl combined with isoflurane, enflurane or propofol in patients undergoing gynaecological laparoscopy, varicose vein or arthroscopic surgery. *Acta Anaesth Scand* 44 (7):790-8, 20