**Title**

Post-operative analgesic requirements in patients following Robot-assisted (RATS) versus Video-assisted Thoracic Surgery (VATS)

**Background**

Robotic-assisted surgery is considered the future of minimally-invasive surgery [1, 2]. The 3D images generated by the robot offer greater depth perception and surgical accuracy as compared to the 2D images of video-assisted surgery. This can translate into reduced intraoperative blood loss, lower perioperative pain scores, shorter hospital stays and less scarring [1]. While there is not yet sufficient evidence to support this [2-4], it is anticipated that given time and experience surgical practice will evolve to reflect this.

Since December 2018 robot-assisted surgery has been offered to patients presenting for elective thoracic surgery at our tertiary hospital.

**Aim and Objectives**

A retrospective analysis was undertaken of 30 elective thoracic surgical patients – 15 robot-assisted and 15 video-assisted – to compare their analgesic requirements intraoperatively and then in the first 48 hours post-surgery.

**Methods**

Patients were matched for baseline characteristics: age, gender, ASA grading, as well as operation type and surgeon performing the procedure. Analgesic requirements intraoperatively, in recovery and days 1 and 2 post-procedure were then recorded. Number of incisions, number of drain insertions and length of time in-situ as well as length of stay for each patient were also recorded.

**Main results**

Baseline characteristics were comparable in the RATS and VATS groups: age (mean 62.9(SD17.1) vs. 63.9(SD17.1)), gender (%male 66.7% vs. 60%) and ASA (mean 2.3 vs. 2.4).

Intraoperatively RATS patients received a higher amount(mg) of IV opioid (mean 8.9 vs. 6.0), though. In recovery fewer RATS patients required analgesia: paracetamol (n=2 vs. 14, mean(g) 0.1 vs. 2.5); opioid (n=8 vs. 14, mean(mg) 0.7(regular) & 13.3(as required) vs. 7.7 & 15); other analgesic agents (n=1 vs. 2, mean(mg) 11.6 vs 100). Day 1 post-op RATS patients needed fewer opioids (mean(mg) 32.3 vs. 35.5) and other analgesic agents (mean(mg) 225 vs 245). By day 2 fewer prescriptions of strong opioids were administered to the RATS patients: regular (n=10 vs. 13) and as required opioids (n=8 vs. 10)

Mean length of time chest drains were in-situ was lower in the RATS group (2 vs. 4 days) though mean length of stay was longer (4(SD3.2) vs. 3(SD3.1)).

**Conclusions**

There was an overall reduction in analgesic requirements in patients having robot-assisted versus video-assisted surgery.

**References**

1. Robotic Thoracic Surgery. Department of Surgery. University of California San Francisco. <https://surgery.ucsf.edu/conditions--procedures/robotic-thoracic-surgery.aspx>
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3. Novellis P et al. Robotic surgery, video-assisted thoracic surgery, and open surgery for early stage lung cancer: comparison of costs and outcomes at a single institute. Journal of Thoracic Disease. 2018; 10(2): 790–798.
4. Upham TC & Onaitis MW. Video-assisted thoracoscopic surgery versus robot-assisted thoracoscopic surgery versus thoracotomy for early-stage lung cancer. The Journal of Thoracic and Cardiovascular Surgery. 2018; 156(1): 365-368.