Low Insufflation Colorectal Surgery (LICS): Prospective Comparative Pilot Study

UNIVERSITY OF TORONTO

Maira Ahmed, Dhruvin H. Hirpara, Atul Prabhu, Fayez A. Quereshy, Sami A. Chadi

BACKGROUND

Pneumoperitoneum with CO_2 and working space are essential in laparoscopic colorectal surgery (CRS)

Pneumoperitoneum has been associated with hypercapnia, subcutaneous emphysema, pneumothorax, pain and pneumomediastinum

Lower intra-peritoneal pressures vs conventional pressures shown to mitigate the impacts of pneumoperitoneum and post operative pain

Effect of low pressure pneumoperitoneum with neuromuscular blockade (NMB) on operative exposure and post-operative outcomes remains unclear in colorectal surgery

AIM

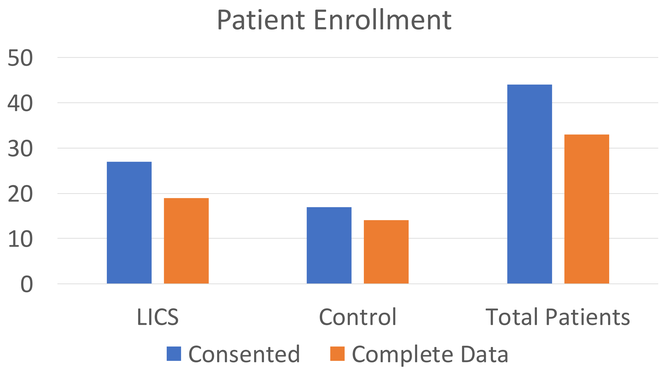
Evaluate safety and merit of combining low pressure pneumoperitoneum with NMB in a pilot, feasibility study

METHODS

- **Patient Groups**
  - Low insufflation (8mmHg) with NMB with Sugammadex reversal (LICS cohort)
  - Conventional therapy (control) with standard insufflation (15 mmHg)
- **Primary endpoint:**
  - Quality of functional recovery via QoR-40 questionnaire pre-op
  - Quality of functional recovery via QoR-40 questionnaire 24 hrs post-op
- **Secondary outcomes:**
  - End-tidal CO_2 ($ETCO_2$), Peak airway pressure (PAP)
  - Rate of conversion to open, Operative time
  - Pain via Visual Analog Scale (VAS), at 12 & 24 hrs post-op
  - 24-hr analgesic use (morphine equivalents)
  - Post-operative ileus, Length of Stay (LOS)

RESULTS

A total of 44 patients were consented in the distribution below.



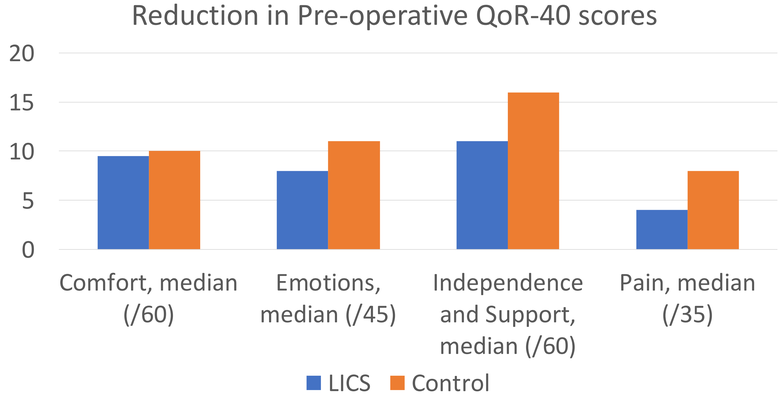
Secondary Outcomes:

There were no notable intra-operative adverse events or conversions to open in either cohort.

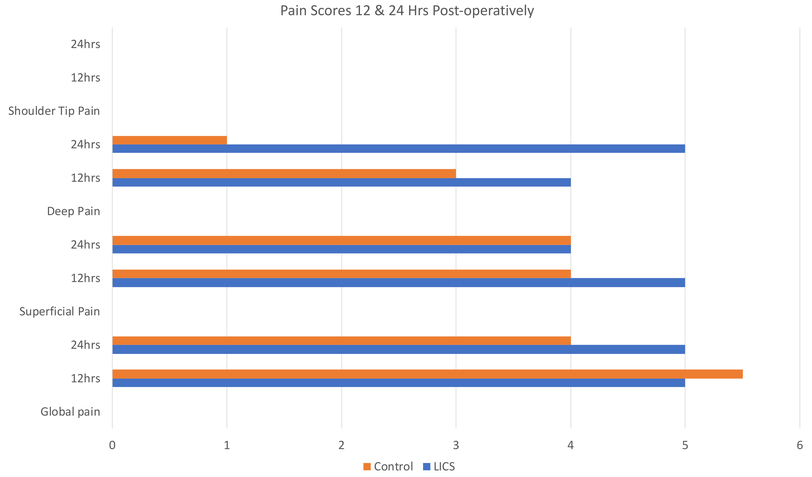
Outcome	LICS	Control
EtCO2 (mmHg)	36.8	37.2
PAP (mmHg)	20	20.6
Operative time (min)	239	185
LOS (days)	3	3.5
Analgesic use	82.5	68.8

Table 1. Secondary Outcomes. Analgesic use is in morphine equivalents. All values are represented as medians

Primary Outcome:



Pain Scores via VAS:



CONCLUSION

Low insufflation colorectal surgery with NMB is safe and feasible. It has the potential to offer improved patient-centered outcomes

Improved QoR 40 scores post-op

No significant difference in LOS or complications

No increase in converting to open

Feasible design and implementation