



The Promise and Challenges of Low Pressure and Micro Laparoscopy: The Case for Low Impact Laparoscopy

Low-pressure versus standard-pressure pneumoperitoneum for laparoscopic cholecystectomy: a systematic review and meta-analysis.

The American Journal of Surgery, 2014, J Hua et al. Tongji University of Medicine, Shanghai, China
(1263 patients from 22 articles were included in the final meta-analysis)

Benefits of Low Pressure

- Pain scores were significantly lower at 6, 12 and 24 hours post operatively ($p=0.01$, $p=0.003$, and $p=0.02$ respectively)
- Incidence of shoulder pain was reduced by 47% ($p<0.001$) (as extrapolated from presented data)
- Rate and requirement of analgesics was significantly lower in ($p=0.02$ and $p=0.003$ respectively)
- Length of Stay was significantly lower ($p=0.01$)

Challenges using Standard Insufflators at Low Pressure

- Operative time was significantly longer ($p<0.001$)
- Need to increase pressure was significant ($p<0.001$)

Needlescopic versus laparoscopic cholecystectomy.
ANZ Journal of Surgery, 2009, M.S. Sajid et al. Worthington Hospital, W.E. UK
(A meta-analysis, 6 randomized controlled trials with 317 patients were included in final meta-analysis)

Benefits of Needlescopic Surgery

- Postoperative pain was significantly less in the needlescopic group ($p=0.0111$)
- Superior cosmetic outcomes were observed in the needlescopic group ($p=0.0021$)

Challenges using Needlescopic Instruments

- Operative time was significantly longer ($p=0.0003$)
- Conversion to 5mm was significantly higher than laparoscopic cholecystectomy ($p=0.0003$)



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Laparoscopic Surgery at low (7mm Hg) pressure with AirSeal® System, *A comparative prospective pilot study with a standard insufflation (15HG) in 60 patients*
Jean-Louis Benifla, et al - Université Pierre et Marie Curie, Paris, France, AAGL Congress, 2014 (unpublished)

Benefits of AirSeal® System in Intraoperative Patient Management*

- Reduced Max Peak Airway Pressure by 25% ($p < 0.0001$)
- Reduced Max End Tidal CO₂ by 10% ($p < 0.0001$)
- Reduced Max Systolic Blood Pressure by 11% ($p = 0.002$)
- Reduced OR Time by 13% (NS)

Benefits of AirSeal® System in Patient Recovery*

- Reduced Shoulder Pain by 62% or more at 4hrs, 8hrs and 24hrs ($p = 0.004$)
- Reduced Narcotic Use by 70% ($p = 0.028$)
- Ready for Same Day Discharge (patient estimated) was twice as common in the Low Impact group

A CQI Project to Improve Pain After Laparoscopic Ventral Hernia Repair*

Bruce Ramshaw**, et al - Surgical Technology International

Benefits of AirSeal® System Patient Recovery*

- PACU Time was decreased by 27%
- Total Morphine equivalents were decreased by 38%
- Length of Stay was decreased by 50%

(Reduction in PACU Time typically increases operational throughput.)



*As extrapolated from presented data.

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