Laparoscopic cholecystectomy with and without Indocyanine green (ICG) fluorescent cholangiography; a systematic review and meta-analysis

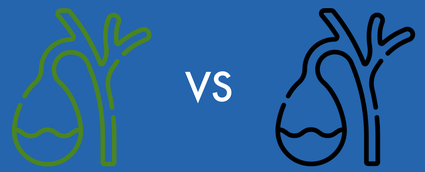
Sahil Sharma MD[1]; Tyler Mckechnie MD[1]; Lea Tessier BMSc[1]; Gaurav Talwar MD[1]; Cagla Eskicioglu MD MSc[1]; Dennis Hong MD MSc[1]; McMaster University
[1]McMaster University, Department of Surgery, Hamilton, ON; [2]Michael G. DeGroote School of Medicine, McMaster University, Hamilton, ON

Background

Fluorescence cholangiography is hypothesized to improve safety during laparoscopic cholecystectomy (LC) by utilizing the excretion of indocyanine green (ICG) to delineate biliary anatomy.



Though ICG has proven to be safe and feasible, comparative review to determine its advantage over LC without ICG is lacking.



Our study aimed to systematically review the effect of ICG on operative time, conversion rate, and biliary injury compared to LC without ICG.

Methods

- Systematic review according to PRISMA[3]
- Searched
  - Medline
  - Embase
  - CENTRAL



- Inclusion
  - Cohorts and RCTs
  - Studies comparing LC+ICG to LC alone
  - Reported on operative duration
  - Secondary outcome; conversion rate and biliary leak



- Cochrane Risk of Bias (RoB) Tool for RCTs 2.0 and ROBINS-I[4]

Results

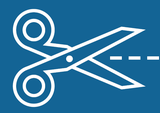
- Two prospective cohort
- Three RCTs
- LC+ICG: n=256
- LC alone: n= 260





Operative Time
- No significant difference (mean difference 4.38, 95% CI = -20.86, 29.61, p=0.73)

Conversion Rate
- No significant difference (OR 0.90, 95% CI =0.31, 2.59, p=0.84)





Biliary leak and Bile duct injury
- Incidence of both low in both groups (<5%)

Conclusion

The use of ICG during laparoscopic cholecystectomy does not influence operative time or the rate of conversion.





Both procedures are safe with low rates of bile leak and bile duct injury.



standardizing the indication for LC and method of ICG delivery would allow for better delineation of the role ICG may play during management of biliary disease.

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