EFFICACY OF COMMON BILE DUCT SALINE IRRIGATION TO REDUCE THE RATE OF RESIDUAL CHOLEDOCHOLITHIASIS: AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION

- Endoscopic stone removal is currently the standard of care for patients with common bile duct stones (CBDS), yet post-procedural recurrence remains a clinical challenge.
- Preventive saline irrigation of the common bile duct (PSIB) has been proposed to mitigate recurrence by enhancing the clearance of residual microlithiasis and biliary sludge.
- This study aims to assess the efficacy of PSIB in reducing recurrence rate of CBDS.

METHODS

- We searched PubMed, Embase, and Cochrane Central for studies comparing the use of saline irrigation versus no irrigation in patients undergoing endoscopic CBDS removal.
- Outcomes were stone-recurrence rate, operative time, and post-procedure complications.
- Risk ratios (RRs), mean differences (MDs), and their 95% confidence intervals (CIs) were computed using a random-effects model.
- This systematic review and meta-analysis followed Cochrane and PRISMA recommendations.
- The statistical analysis was conducted using Review Manager 5.4.

RESULTS

- A total of 1,121 patients from six studies were included, of whom 363 (32.38%) underwent PSIB.
- The mean age of all patients was 63.52 years old.
- There was a significant decrease in stone recurrence in the saline irrigation group (RR 0.37; 95% CI 0.26-0.53; $p < 0.00001$; $I^2 = 0\%$) – Figure 1.
- PSIB was associated with longer operative time (MD 3.96 minutes; 95% CI 2.30-5.62; $p < 0.00001$; $I^2 = 4\%$).
- There was no statistically significant difference between both groups in post-procedural cholangitis (RR 1.40; 95% CI 0.61-3.24; $p = 0.43$; $I^2 = 0\%$), post-procedural pancreatitis (RR 0.60; 95% CI 0.24-1.51; $p = 0.28$; $I^2 = 0\%$), and gastrointestinal bleeding (RR 0.68; 95% CI 0.09-5.48; $p = 0.72$; $I^2 = 0\%$).

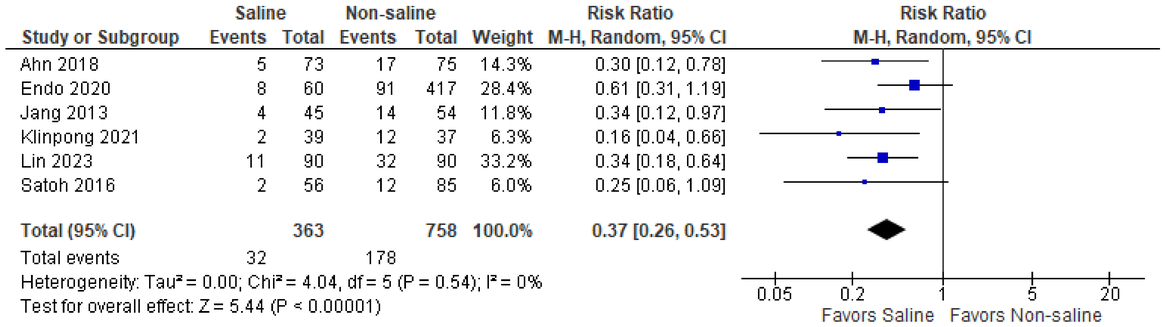


Figure 1. Stone recurrence with PSIB versus no PSIB

CONCLUSION

- In this comprehensive meta-analysis comprising 1,121 patients who underwent endoscopic CBDS removal (encompassing 798 more patients than the previous meta-analysis), PSIB was associated with a significant reduction in stone recurrence.