

Letter to the Editor

Simple average is not appropriate for understanding the results of previous studies

Dear Editor,
We read the article by Dr. Rabie and Dr. Sokker with great interest at the point that authors compared an old, rare procedure, cholecystolithotomy, with standard one for gallstone ileus and appreciate the authors’ efforts to perform a comprehensive review and indicate the recommendations of the treatment strategy of gallstone ileus.¹ However, we would like to point out the concerns about the interpretation of the results of previous studies.

In their article, authors indicated “The one-stage approach was associated with higher mortality when compared to enterolithotomy alone, however, both procedures had similar mortality rates in the last three decades (7.5% and 7.8% for the one-stage procedure and enterolithotomy alone, respectively)” assumingly based on the mortality simply calculated by the number of total patients and events (deaths). However, this simple unweighted average should be avoided because of the phenomenon known as “Simpson’s paradox”.² Otherwise, we should use a weighted average to estimate the pooled effect. Additionally, some of the included studies in their article showed no events for either the one-stage operation group or the enterolithotomy only group, which did not provide any information about the relative treatment

effect.³ Therefore, we performed a random effect Mantel–Haenszel meta-analysis of studies reported within the last 30 years (i.e., 1990 or later) in their article to confirm the author’s interpretation. Our meta-analysis showed the significantly higher mortality of the one-stage operation than the enterolithotomy only (risk ratio, 1.31; 95% confidence interval, 1.02–1.67), which was inconsistent with the interpretation of the previous results by the authors (Fig. 1).

Moreover, even our meta-analysis can be false because of several reasons: most of included studies were case series, systematic literature search may not be performed, small sample sizes of included studies, and no risk stratification or adjustment. In principle, clinical recommendations should be based on the results of the systematic review.⁴ For a rare condition or procedure such as cholecystolithotomy for gallstone ileus, it may be acceptable to draw recommendations from low grade evidence such as case series. Therefore, we admit the article by Dr. Rabie and Dr. Sokker is quite valuable. Nevertheless, we believe that the presented interpretation of the results should be as correct as possible⁵ and are concerned that the authors’ interpretation of “both procedures had similar mortality rates” can be misleading.

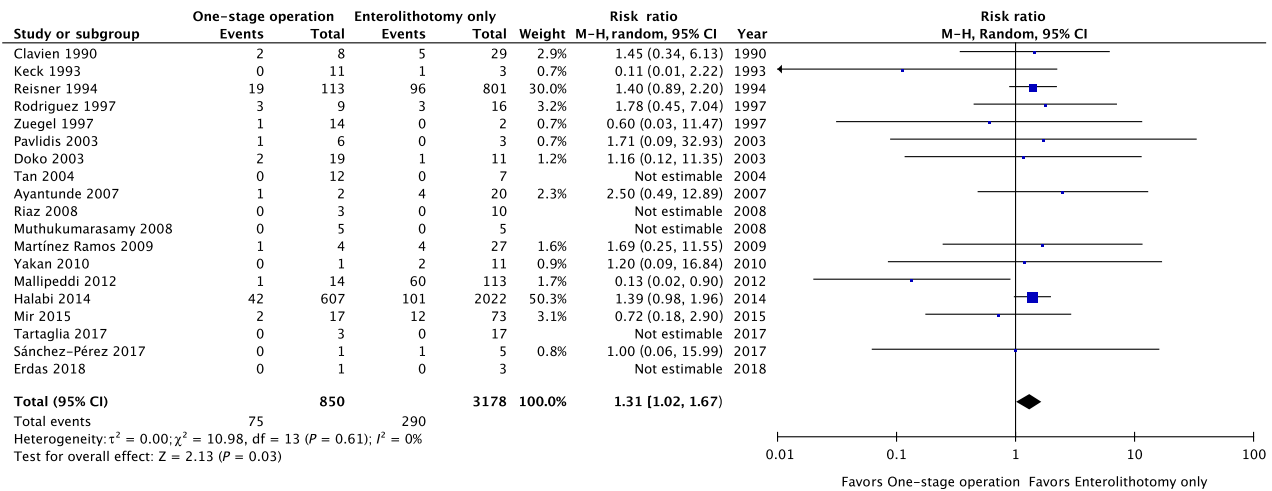


Fig. 1. Forest plot of studies reported within the last 30 years, including Rabie 2019.¹ Studies with no events for either the one-stage operation group or the enterolithotomy only group were excluded from the meta-analysis because these studies did not provide any information of the relative treatment effect.

DISCLOSURE



Approval of the research protocol: N/A.

Informed consent: N/A.

Registry and the registration no. of the study/trial: N/A.

Animal studies: N/A.

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REFERENCES

- 1 Rabie MA, Sokker A. Cholecystolithotomy, a new approach to reduce recurrent gallstone ileus. *Acute Med. Surg.* 2019; 6: 95–100.
- 2 Abramson NS, Kelsey SF, Safar P, Sutton-Tyrrell K. Simpson's paradox and clinical trials: what you find is not necessarily what you prove. *Ann. Emerg. Med.* 1992; 21: 1480–2.
- 3 Higgins JPT, Green S (eds). Ch 16.9.3 Studies with no events. *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0. The Cochrane Collaboration, 2011. [cited 18 Mar 2019]. Available from: www.cochrane-handbook.org.
- 4 Guyatt G, Oxman AD, Akl EA *et al.* GRADE guidelines: 1. Introduction—GRADE evidence profiles and summary of findings tables. *J. Clin. Epidemiol.* 2011; 64: 383–94.
- 5 Guyatt GH, Oxman AD, Vist GE *et al.* GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. *BMJ* 2008; 336: 924–6.