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Meta-analysis results in a 'cap' of confusion

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Nutalapati et al. [1] showed in their meta-analysis of randomized controlled trials (RCTs) that cap-assisted colonoscopy significantly improves adenoma detection rate compared to standard colonoscopy. However, two major issues associated with meta-analysis design may undermine the validity of their results.

First, the authors decided to meta-analyze results exclusively from high-quality studies (defined as Jadad score ≥ 3). Focusing on a particular group of studies argues against the fundamental principles of meta-analysis and as as a result, the aforementioned results are susceptible to selection bias. All studies fulfilling inclusion criteria regardless of quality score should have been included in the meta-analysis; strengths and limitations of each should have been addressed in the risk of bias section of the study, allowing conclusions to be draw about the quality of available data.

Second, according to the Cochrane Handbook for Systematic Reviews of Interventions, implementation of Jadad score for assessing the quality of included studies is "explicitly discouraged since it strongly emphasizes reporting rather than conducting, while it does not cover one of the most important potential biases in RCTs, namely allocation concealment" [2]. Thus, use of a different tool for assessing risk of bias (selection, performance, detection, attrition and reporting) is recommended and a detailed overview on the risk of bias assessment within a separate manuscript section rather than a glimpse (e. g. **Table 1**) would be of value.

Finally, inconsistencies regarding data presentation and statistical analysis represent minor issues with the manuscript: risk ratios (RR) with corresponding 95 % CI are to be calculated for the meta-analysis of RCTs [2]; however, data on **Fig. 2** are erroneously presented with the respective odds ratios (OR). Moreover, data in **Fig. 2a** are analyzed with fixed effect model, despite presence of heterogeneity ($I^2 = 56\%$, $P = 0.03$). Although effect sizes might not be affected, their interpretation might be slightly different.

In conclusion, systematic reviews and meta-analyses may be at the top of the clinical evidence pyramid; however, they can also suffer from many flaws [3, 4]. Applying rigorous methodology is of paramount importance to produce credible, high-quality, clinically useful evidence [5].

Competing interests

None

The authors

Georgios Tziatzios, Paraskevas Gkolfakis, Konstantinos Triantafyllou
Hepatogastroenterology Unit, Second Department of Internal Medicine – Propaedeutic, Research Institute and Diabetes Center, Medical School, National and Kapodistrian University of Athens, "Attikon" University General Hospital, Athens, Greece

Corresponding author

Konstantinos Triantafyllou, MD, PhD
Rimini 1, 12462, Athens, Greece
Fax: +302105326454
ktriant@med.uoa.gr

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