

Association of Tracheostomy With Outcomes in Patients With COVID-19 and SARS-CoV-2 Transmission Among Health Care Professionals: A Systematic Review and meta-analysis

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Background

- Approximately 70% of patients with COVID-19 require invasive mechanical intubation (IMV)
- COVID-19 guidelines suggest performing tracheostomy after 14 days to reduce the risk of viral transmission
- The purpose of this study is to evaluate the association of tracheostomy with clinical outcomes and COVID-19 transmission amongst health care professionals (HCP)

Methods

- Registered in PROSPERO (CRD42020208129)
- We included studies that reported clinical outcomes in adult patients with COVID-19 on IMV who were candidates for tracheostomy and/or COVID-19 transmission amongst HCP
- Cochrane, EMBASE (Ovid), Medline (Ovid) and Web of Sciences from January 1, 2020 – March 4, 2021
- ROBINS-I tool used for risk-of-bias appraisal
- Descriptive analysis and random-effects model meta-analysis

Results

- 1877** records were identified in the initial screen
- 156** studies were included in full-text review
- 14** records were included in the meta-analysis
- ROBINS-I showed notable bias in the confounders and patient bias domains

Results

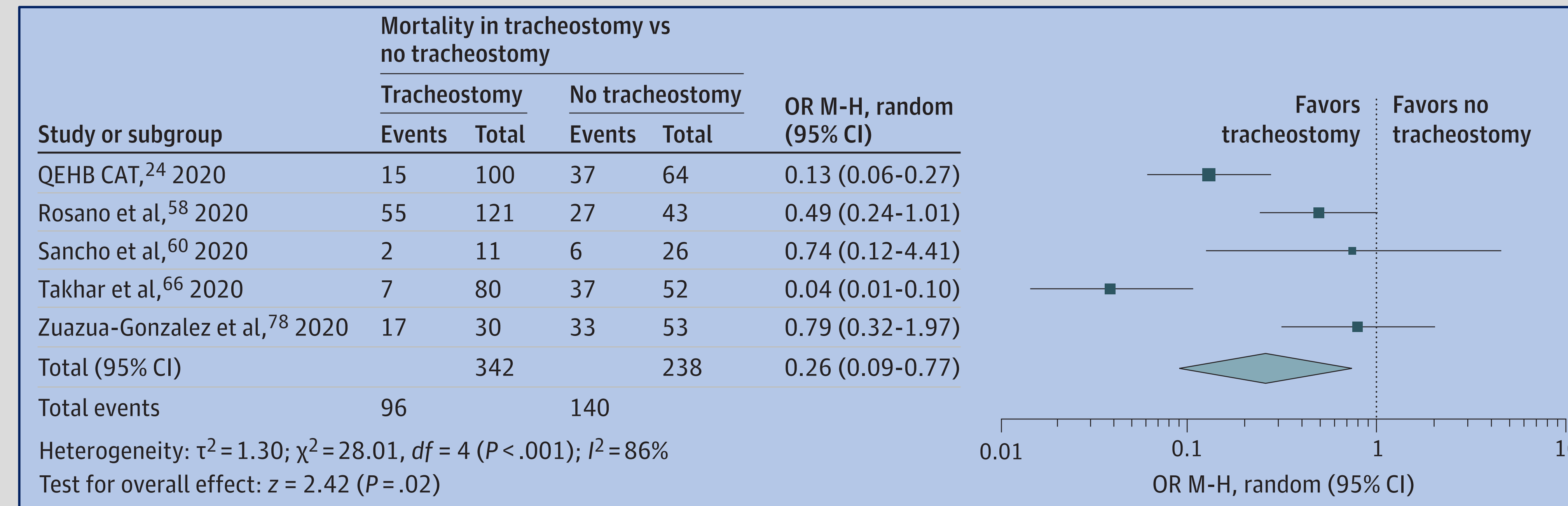


Figure 1. Mortality rates were lower in COVID-19 patients who underwent tracheostomy

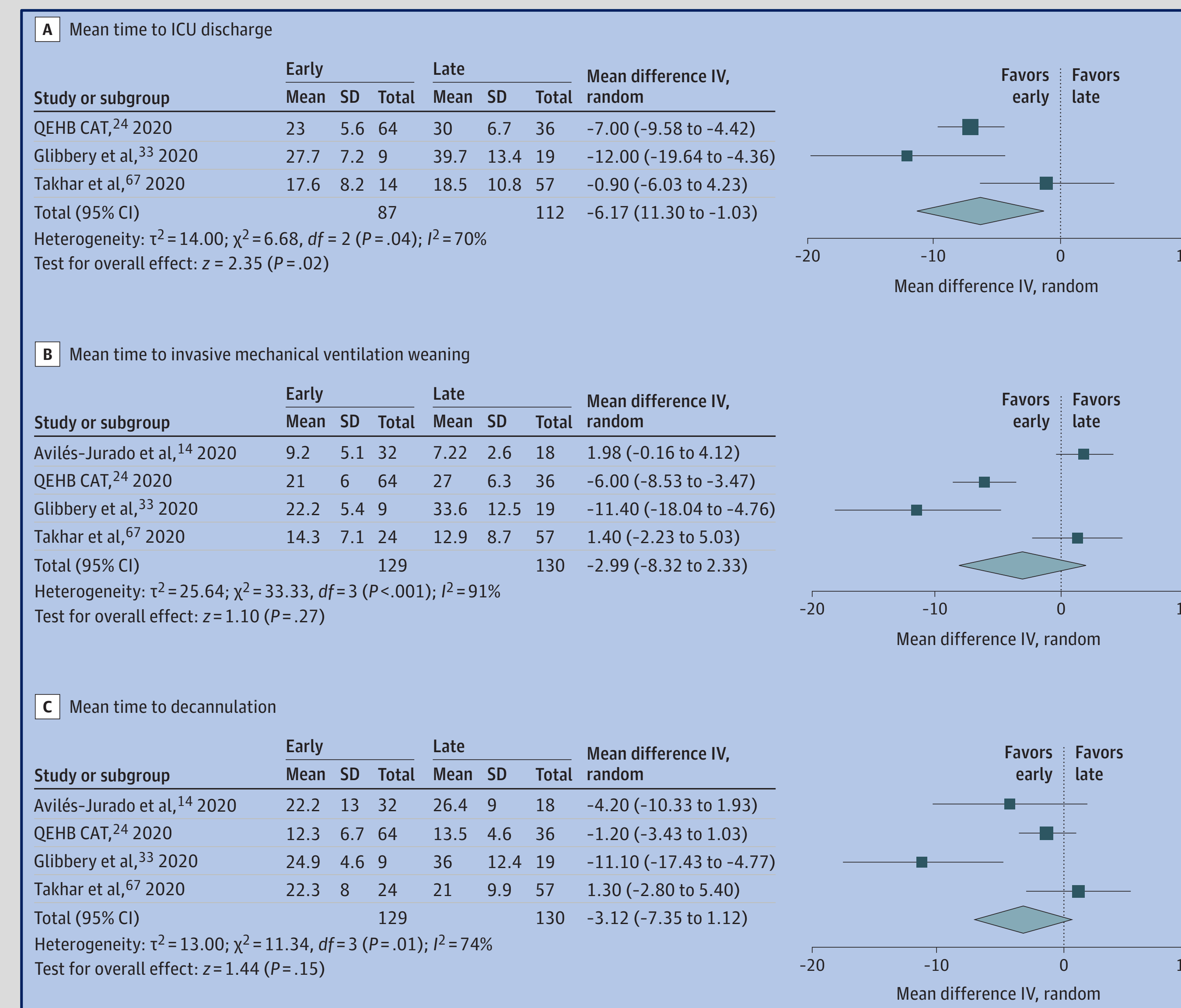


Figure 2. Mean time to ICU discharge was lower in early (< 14 days from start of IMV) vs. late tracheostomy. There was no change in other clinical endpoints.

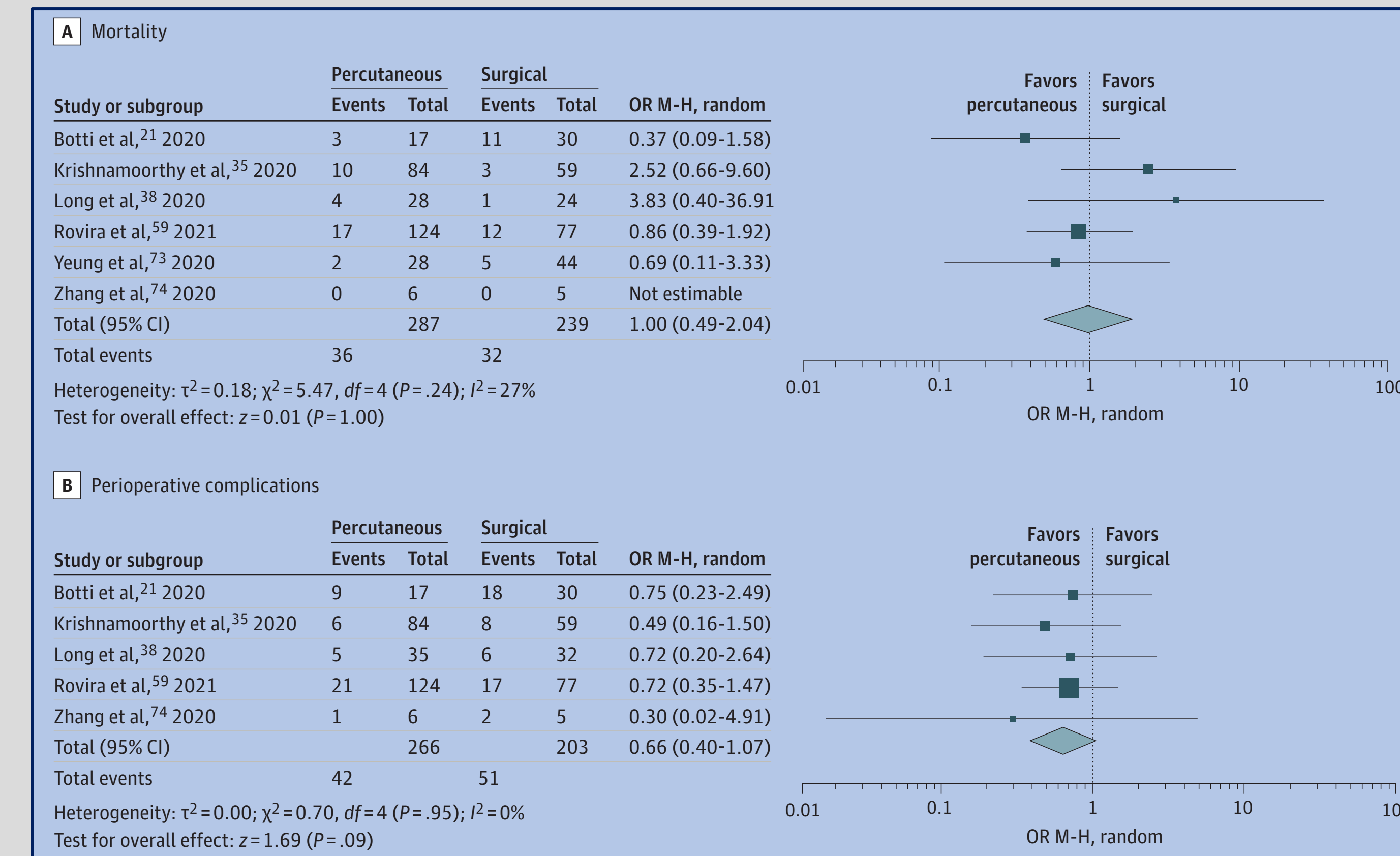


Figure 3. There were no differences mortality rate or postoperative complication rates in percutaneous vs. surgical tracheostomy

Results

- 84.1%** of studies investigated COVID-19 transmission amongst HCPs
- 94.7%** of these studies did not find that any HCPs tested positive for COVID-19 following tracheostomy
- 31.7%** of studies reported using N95 or equivalent masks during tracheostomy

Conclusions

- COVID-19 transmission is low amongst HCPs who perform tracheostomy with full personal protective equipment
- Early tracheostomy may be associated with reduced length of stay in the ICU

References

Thamboo A, Lea J, Sommer DD et al. Clinical evidence based review and recommendations of aerosol generating medical procedures in otolaryngology—head and neck surgery during the COVID-19 pandemic. J Otolaryngol Head Neck Surg. 2020;49(1):28.