

# The Role of Anticoagulation on Neurological Complication Events and Mortality in Patients with Infective Endocarditis: A Systematic Review and Meta-Analysis



Ahmed Elkaryoni<sup>1</sup>; Charles F. Sherrod<sup>1</sup>; Janki Thakker<sup>1</sup>;  
Mohamed Abbas<sup>2</sup>; Anas Noman<sup>1</sup>; Aref A. Bin Abdulhak<sup>3</sup>



<sup>1</sup>University of Missouri-Kansas City and Saint Luke's Hospital of Kansas City, Kansas City, MO;

<sup>2</sup>University of Alexandria, Alexandria, Egypt; <sup>3</sup>University of Iowa Carver College of Medicine, Iowa City, IA

## BACKGROUND

- Anticoagulation (AC) and infective endocarditis (IE) is an area of unestablished evidence of advantage or safety.
- The absence of randomized control trials and the high risk of bleeding generated this uncertainty.
- Neurological complication is common, fatal and associated with high mortality.
- Observational studies were conflicting in this context however given deficient data about the role of AC in preventing thromboembolic complications, the decision was to personalize using AC to the underlying comorbidities as in prosthetic valves and atrial fibrillation.

## HYPOTHESIS

- We conducted a systematic literature review and meta-analysis to assess the role of AC on neurological complications and mortality in IE

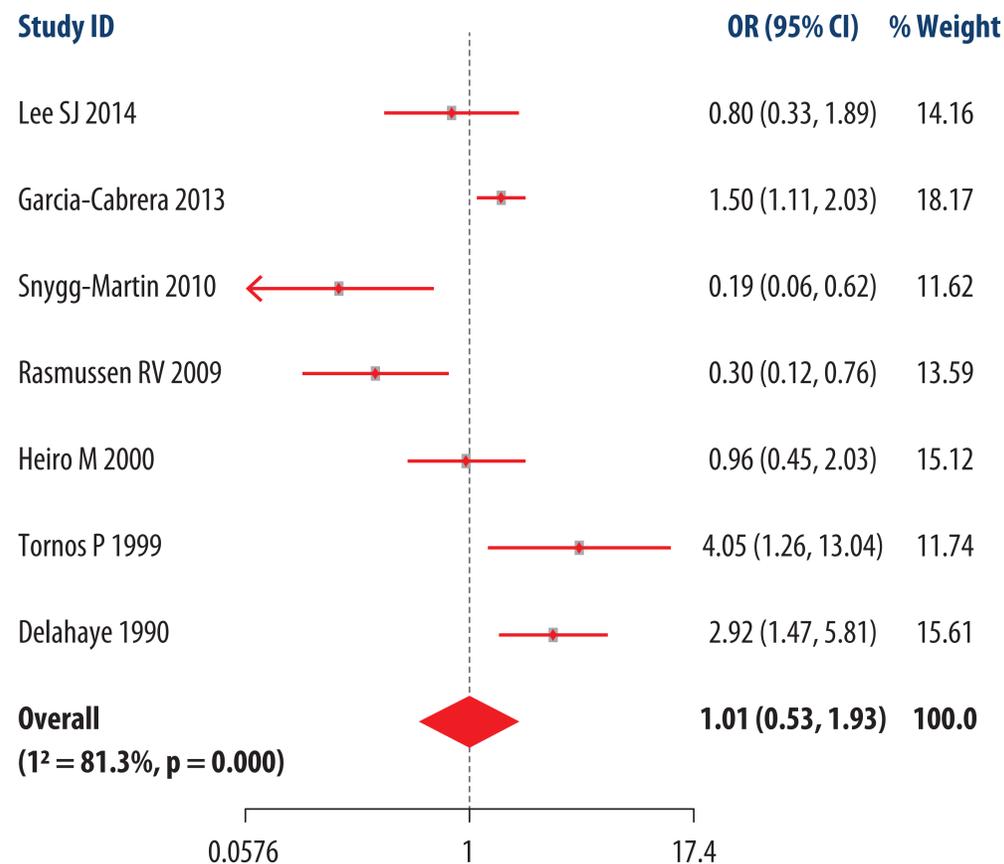
## METHODS

- PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), and Embase were searched from inception through March 2018.
- Original studies of IE patients that compared neurological complications and mortality among those with and without AC were included.
- Primary outcomes were neurological events and mortality.
- The analysis was done using a random-effects model. Odds ratios are expressed with 95% confidence intervals (CIs).

## RESULTS

- Seven observational studies with a total 2863 patients with IE met the inclusion criteria.
- AC during the initial diagnosis of IE 551 patients and no AC 2312 patients.
- Among 2863 patients with IE, total neurological complications events (ischemic infarction, cerebral hemorrhage, mycotic aneurysm, and meningitis) were 686.
- Meta-analysis showed no difference in neurological complications events in patient with and without AC (OR: 1.01, 95% (CI): [0.53 - 1.93]; p=0.000, I<sup>2</sup>=81.3%).

FIGURE ONE



Note: Weights are from random effects analysis

## RESULTS

- Mortality did not have significant difference regardless of being on AC or not (OR: 1.33, 95% CI: 1.076 - 1.651; p=0.0085).
- Subgroup analysis was done to assess odds of cerebral hemorrhage while on AC (OR: 2.496, 95% CI: 1.658 - 3.757; p=0.0001).
- Subgroup analysis was done for odds of neurological complications in the setting of prosthetic valve (OR: 0.933, 95% CI: 0.734 - 1.185; p=0.5706).

## CONCLUSION

- No significant effect for AC on neurological complications and mortality in IE.
- However, AC showed increased incidence of cerebral hemorrhage events.
- Prosthetic valve did not show higher odds for neurological complications but keep in mind most of these patients usually on AC during diagnosis of IE.
- AC should be individualized according to underlying comorbidities and estimated risk of bleeding.

## DISCLOSURES

- A. Elkaryoni: None.
- C.F. Sherrod: None.
- J. Thakker: None.
- M. Abbas: None.
- A. Noman: None.
- A.A. Bin Abdulhak: None.