Introduction: The efficacy and safety of non-vitamin K antagonist oral anticoagulants (NOACs) in atrial fibrillation (AF) patients with cancer are unclear. The present study aims to assess the efficacy and safety of NOACs in AF patients with cancer.

Methods: To find all randomized controlled trials (RCTs) in which NOACs were compared against vitamin K antagonists (VKA) in AF with cancer, we have searched the Cochrane Library, PubMed, Embase databases and so on. Risk ratio (RR) was chosen as the statistic for dichotomous variables. Interval estimates use a 95% confidence interval (95% CI). Heterogeneity was evaluated in the I² statistic. Differences between groups were examined statistically significant at P<0.05.

Result: Four RCTs with a total of 3135 participants (male 67.5%) were included. Regarding the risk of stroke or systemic embolism (SE) [risk ratio (RR) 0.75, 95% confidence interval (95% CI) 0.52-1.09; P=0.14], venous thromboembolism (VTE) [RR 0.91, 95% CI 0.33-2.50; P=0.86] and all-cause death [RR 0.95, 95% CI 0.65-1.38; P=0.78], there was no significant difference between DOACs and VKAs in patients with AF and cancer. However, the NOACs group had a significantly lower incidence of major bleeding [RR 0.80, 95% CI 0.64-0.98; P=0.03], and anti-Xa were more effective than VKAs in reducing major bleeding [RR 0.79, 95% CI 0.62-0.99; P=0.04].

Conclusion: The present study for the first time finds that NOACs and VKAs are equally effective in preventing VTE and stroke in patients with AF and cancer, but the former has a lower risk of major bleeding. The efficacy and safety of NOACs in patients with AF and cancer still requires more trials to provide information.