Efficacy and safety of direct oral anticoagulants (DOACs) versus vitamin K antagonist (VKA) among patients with atrial fibrillation and hypertrophic cardiomyopathy: A systematic review and meta-analysis

Pongprueth Rajirachun
Nipith Charoenngam
Phuurwadith Watanachayakul
Arjbordin Winijkul
Weerapat Owattanapanich
Patompong Ungprasert

Introduction: Long-term oral anticoagulant therapy is recommended for patients with hypertrophic cardiomyopathy (HCM) who develop atrial fibrillation (AF) to prevent cardioembolic complications. In patients with non-valvular AF, direct oral anticoagulants (DOACs) has been proved to be non-inferior to adjusted-dose vitamin K antagonist (VKA). However, the role of DOACs in patients with AF in the setting of HCM has not been fully established.

Methods: A comprehensive literature review was conducted by searching for published articles indexed in MEDLINE and EMBASE databases from inception through May 1, 2019. Eligible studies must start with recruitment of patients with AF in the setting of HCM who received either DOACs or VKA. The studies must follow them for the occurrence of ischemic stroke. Hazard ratio (HR) and confidence interval (CI) of developing ischemic stroke between the two groups must be reported. Pooled HR was calculated using a random-effect, generic inverse variance method of DerSimonian and Laird.

Result: A total of three retrospective cohort studies with 4,418 participants met the eligibility criteria and were included into the meta-analysis. A significantly lower risk of all-cause death was observed in the DOACs group than in the VKA group with the pooled HR of 0.43 (95% CI, 0.33-0.58, I²=0%). However, the risk of ischemic stroke among patients with AF and HCM who received DOACs was not significantly different from those who received VKA with the pooled HR of 0.95 (95% CI, 0.73-1.22, I²=0%). Both major bleeding and intracranial bleeding were also not significantly different between those who received DOACs vs. those who received VKA with the pooled HR of 0.94 (95% CI, 0.70-1.26, I²=0%) and 0.61 (95% CI, 0.27-1.37, I²=0%), respectively.

Conclusion: The current study found that the risk of all-cause death was significantly reduced but the risk of ischemic stroke, major bleeding and intracranial bleeding were not significantly different between patients with AF and HCM who had received DOACs and those who received VKA.