

Novel Oral Anticoagulants (NOACs) Adherence and Bleeding Events in Atrial Fibrillation Patients: A Systematic Review and Meta-Analysis

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Abstract : Objectives: Non-adherence and discontinuation of anticoagulant therapy lead to increased ischemic stroke risk and contributes to suboptimal outcomes of the anticoagulant treatment. This systematic review and meta-analysis were aimed to investigate the adherence to NOACs and adverse events in patients with AF. Methods: Original research articles conducted on patients with AF and using any NOACs (dabigatran, rivaroxaban and apixaban) reporting adherence for at least 35 days were included. Scientific databases including PubMed, Web of Science, and Google Scholar were searched using MeSH keywords to obtaining literature researched between 2008 to till June, 2016. Study characteristics, patient's sociodemographic and clinical characteristics, medication adherence levels and bleeding events reported were recorded. Results: The overall sample size of the six studies is 1,640,157, with CHADS2 scores < 2 in 551 patients, CHADS2-VASc \geq 2 in 62,232 AF patients. Three-fourth [75.6% (95%CI= 66.5-84.8), $p < 0.001$] are adherent to NOACs. However, a higher rate [72.7% (62.5-82.9), $p < 0.001$] of adherence was observed with Dabigatran than Apixaban [59.9% (3.2-123.1), $p=0.063$] and Rivaroxaban [59.3% (38.7-80.0), $p<0.001$]. Sub-group analysis revealed that nearly 57% of the AF patients on NOACs have CHADS2 scores < 2 and 20% of these patients were non-adherent to NOACs. Overall bleeding events rate associated with NOACs non-adherent AF patients was found to be 7.5% (0.2-14.8), $p=0.045$. However, nearly 11.2% of AF patients experienced bleeding events were non-adherent to NOAC medications. A higher proportion of bleeding events were noticed with Dabigatran (14.7%). Conclusions: Adherence rates, while uniformly suboptimal, nevertheless varied considerably, lowest at 59.3% for rivaroxaban and 59.9% for apixaban, followed by dabigatran (75.6%). Overall bleeding events associated with NOACs rates were 7.5%. However, lower adherence to NOACs was associated with worse outcomes among patients with greater stroke risk.

Keywords : atrial fibrillation, bleeding events, meta-analysis, novel oral anticoagulants

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