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Int J Cardiovas Res 2017, 6:5
DOI: 10.4172/2324-8602-C1-003

19TH Annual Cardiology Conference

August 31-September 01, 2017 Philadelphia, USA

In patients over the age of 50 years with diagnosed atrial fibrillation, is the anticoagulant rivaroxaban (Xarelto) more efficacious at decreasing the incidence of cerebrovascular accidents (CVA) within one year when compared to a treatment regimen of warfarin?

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Background & Purpose: Atrial fibrillation is an irregular heart rhythm affecting approximately 2.3 million adults in the United States. This abnormal rhythm predisposes patients to dangerous complications, most notably the development of blood clots leading to cerebrovascular accidents (CVA) or strokes. The purpose of this analysis was to determine the efficacy of rivaroxaban, a commonly prescribed Factor Xa inhibitor, compared to the use of warfarin, the current mainstay of treatment, at reducing incidence of cerebrovascular events.

Materials & Methods: Database search was performed using Moody Medical Library accumulating articles from Ovid, Pubmed, Ebscohost, Cochrane Library, Web of Science, and Clinical Keys. The inclusion criteria composed of studies within the last ten years, peer-reviewed, and journal articles. Each article was analyzed to include non-valvular atrial fibrillation participants on warfarin, non-valvular atrial fibrillation participants on rivaroxaban, and information regarding number of patients developing a stroke within one year of respective treatment. Meta-analysis and systematic reviews were excluded. A total of ten randomized-controlled studies met the criteria. Meta-analysis was extracted with OpenMeta software using a two-group proportions study comparing the risk ratio of incidence of stroke with warfarin and with rivaroxaban.

Results: A meta-analysis was performed over the data provided by ten randomized-controlled trials to determine the overall risk ratio and statistical significance of one treatment compared to the other, as determined by the incidence of cerebrovascular events. Favorable treatment outcome would translate to a decreased rate of CVA among patients receiving that medication. Results were combined and summated prior to performing the meta-analysis. The summation of pooled data provided 62,275 total patients receiving rivaroxaban with 1,959 CVA events, and 135,910 total patients receiving warfarin with 4,532 CVA events. The meta-analysis indicated an overall relative risk for cerebrovascular event incidence as 0.852 [0.792, 0.916] with a 95% confidence interval and $p<0.001$. The heterogeneity of the data pool was determined using the I2 value, which was calculated as 34.65%, indicating minimal heterogeneity among the studies provided.

Conclusion: The meta-analysis of ten randomized-controlled trials found that among patients with atrial fibrillation treated with either rivaroxaban or warfarin, there was moderately strong evidence of reduced relative risk of thromboembolic events 0.852 [0.792, 0.916, CI 95%, $p<0.001$] in patients receiving rivaroxaban compared to warfarin. A relative risk <1 indicates a decreased risk of events in the treatment group receiving rivaroxaban as compared to the control group receiving warfarin; thus, there is favorability for rivaroxaban over warfarin. Furthermore, findings indicate lower risk of stroke in patients treated with rivaroxaban but do not assess safety outcomes. Therefore, the stroke risk should not be the sole factor when deciding appropriate anticoagulant therapy.

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