



REVIEW OF ROLE OF DIRECT ORAL ANTI-COAGULANTS IN PREVENTING STROKE ASSOCIATED WITH ATRIAL CARDIOPATHY

Neurology

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ABSTRACT

Atrial cardiopathy is a rare entity. It is a risk factor for persistent and undiagnosed atrial fibrillation. Atrial cardiopathy is known to cause many neurological illness. It can cause a stroke. Several studies have come up hypothesizing and highlighting the existence of atrial cardiopathy as an etiological cause of cryptogenic stroke. We reviewed the literature for the utility of direct oral anti-coagulants in prevention of stroke associated with atrial cardiopathy.

KEYWORDS

INTRODUCTION

Atrial cardiopathy is also a known risk factor of many neurological diseases such as vascular cognitive impairment, dementia and silent brain infarcts. Atrial cardiopathy is a rare entity and an etiology of exclusion in a cryptogenic and embolic stroke of an undetermined source [1]. Atrial cardiopathy might have a prognostic significance in patients with acute ischemic stroke [2]. It can occur at any age, and the longer the history, the greater the risk of stroke and dementia [3]. Atrial cardiopathy is characterized by an abnormal irreversible structural change in atrial tissue that can be genetic, toxin-mediated, or acquired post-cardiothoracic surgery. In addition, histologically, atrial fibrosis and myocyte hypertrophy can occur. When coexisting with vascular risk factors like diabetes, hypertension, and dyslipidemia, they predispose patients to atrial enlargement. Enlarging of the atrial cavity changes the tissue density of ion channels, ion currents and affects action potential duration, leading to irreversible atrial electrical remodeling. Overall this leads to an increased risk of persistent atrial fibrillation and stasis of blood, thereby triggering Virchow's triad and increasing risk of thromboembolism. The prevalence of atrial fibrillation in patients with atrial cardiopathy has been reported to range from approximately 30% to 70% in different studies [2]. Atrial cardiopathy is an infrequent entity and is not known to clinicians across the globe and, if not looked for during hospital evaluation, can be missed as the underlying cause of a cryptogenic stroke.

At Rial Cardiopathy And Antithrombotic Drugs In Prevention After Cryptogenic Stroke (arcadia) Trial

The ARCADIA multi-center trial on atrial cardiopathy used the EKG criteria defined as ≥ 1 of the following markers: P-wave terminal force $>5,000 \mu V \cdot ms$ in ECG lead V1, serum NT-proBNP $>250 \text{ pg/mL}$, and left atrial diameter index $\geq 3 \text{ cm/m}^2$ for the diagnosis of atrial cardiopathy. This trial shows no benefit of direct oral anti-coagulant apixaban compared to aspirin in preventing embolic stroke of undetermined source associated with atrial cardiopathy [1].

DISCUSSION

Anticoagulation plays a role in primary as well as secondary prevention of stroke. Warfarin is an efficacious anticoagulant. However, an increased risk of life-threatening bleeding such as intracranial hemorrhage undermines the role of warfarin for chronic use in irreversible diseases like atrial cardiopathy. Clinically, direct (thrombin or factor Xa inhibitors) oral anticoagulants such as apixaban, rivaroxaban, edoxaban, and dabigatran seem to incur the least bleeding risk and potentially act as long-term thromboprophylaxis in prevention of stroke associated with atrial cardiopathy

when based on risk stratification in individual cases. In addition to thromboprophylaxis, patients with atrial cardiopathy might need long-term prevention from rapid response atrial fibrillation. Comparative analysis has repeatedly shown that anticoagulants are superior to antiplatelets, but randomized controlled trials have proven that directly acting oral anticoagulants are not superior to antiplatelets in preventing atrial fibrillation-related stroke and non-atrial fibrillation-related stroke. Multiple randomized controlled trials have demonstrated the non-inferiority of DOAC to warfarin in preventing stroke with lesser risk of bleeding [4-5]. It implies that DOAC is effective in preventing embolisms. We need more studies on the stroke rates in atrial cardiopathy and randomized controlled trials to determine the efficacy of DOAC in preventing stroke associated with atrial cardiopathy. In addition, there is a need to study the role of DOACs in cryptogenic stroke and ESUS stroke subtypes. There is a need to explore patient characteristics, risk stratification, bleeding risk assessment, cost-effectiveness, and clinical efficacy of DOAC in preventing stroke associated with atrial cardiopathy [3-5].

CONCLUSION

Atrial cardiopathy is also a known risk factor of many neurological diseases. Atrial cardiopathy is a rare etiology of persistent atrial fibrillation and should be excluded in a cryptogenic and embolic stroke of an undetermined source. Atrial cardiopathy is characterized by an abnormal irreversible structural change in atrial tissue. Atrial cardiopathy is not known to clinicians across the globe and, if not looked for during hospital evaluation, can be missed as an underlying cause of a cryptogenic stroke. We need more studies on the stroke rates in atrial cardiopathy and randomized controlled trials to determine the efficacy of DOAC in preventing stroke associated with atrial cardiopathy.

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