DSEN ABSTRACT

Direct Oral Anticoagulants for the Acute and Extended Treatment of Venous Thromboembolic Events: A Systematic Review and Network Meta-Analysis

Summary

A systematic review and network meta-analysis of the efficacy and safety evidence pertaining to the use of direct oral anticoagulants for acute and extended treatment of venous thromboembolism compared to standard therapy.

Key messages

Direct oral anticoagulants are an alternative therapeutic option for the acute or extended treatment of venous thromboembolism, including deep vein thrombosis or pulmonary embolism. They offer some advantages over vitamin K antagonists as they overcome some of the practical limitations associated with these drugs.

Potential benefits of extended therapy should be carefully weighed against the elevated risk of bleeding identified for both rivaroxaban and VKA.

What is the issue?

- Venous thromboembolism (VTE) is a condition associated with significant morbidity and mortality that may affect up to 5% of the population during their lifetime. Patients with acute VTE are at high risk of recurrence in the immediate short-term.
- Standard therapy for acute VTE has focused on initial use of injectable heparin products followed by a course of an oral vitamin K antagonist (VKA) (e.g., warfarin) for the secondary prevention of VTE.
- Recent evidence suggests that direct oral anticoagulants (DOACs; dabigatran, rivaroxaban, apixaban) are beneficial in the acute and extended treatment periods, but there are no comparative trials among the DOACs and risk of bleeding is a concern.

What was the aim of the study?

- This study reviewed the benefits and harms associated with DOACs, compared with standard treatment, for acute or extended treatment in patients with VTE.

How was the study conducted?

- We performed a systematic review of the available evidence and conducted a Bayesian network meta-analysis of evidence from randomized controlled trials relating DOACs to other DOACs or standard treatment for recurrent VTE, major bleeding, acute coronary syndrome, major adverse cardiovascular events, stroke, cardiovascular death, all-cause death, and intracranial bleeding.

What did the study find?

- In the acute treatment of VTE, there were no significant differences between any of the DOACs and standard therapy or among the DOACs for prevention of recurrent VTE or any other outcome.
- Compared with VKA, acetylsalicylic acid (ASA) was associated with an increased risk of recurrent VTE. Patients taking rivaroxaban were at increased risk of recurrent deep vein thrombosis relative to those taking VKA.
- Patients taking rivaroxaban were at increased risk of major bleeds compared with VKA, dabigatran, ASA, and apixaban; however, the data were sparse (one study) which limits the interpretation of these findings.
- In the extended treatment of VTE, there were no differences among the DOACs for recurrent pulmonary embolism, all-cause death, cardiovascular death or acute coronary syndrome.

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CIHR IRSC Canadian Institutes of Health Research / Instituts de recherche en santé du Canada

ccNMA Canadian Collaboration for Drug Safety, Effectiveness & Network Meta-Analysis

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