Effectiveness of LMWH Compared with DOACs in Preventing Pulmonary Embolism Following Orthopedic Surgery

John Cuenca, Amber Cunningham, Katherine Kartman

Abstract

Background:

Venous thromboembolism (VTE) is a serious complication that occurs when a blood clot or a thrombus forms in a vein deep within the body with potential to form a PE. Patients who undergo total hip or knee arthroplasty, are at significantly higher risk for developing a DVT postoperatively.

Purpose

The purpose of this study is to determine the effectiveness of direct oral anticoagulants (DOACs) compared to low molecular weight heparin (LMWH) in preventing post-operative venous thromboembolism in patients undergoing large lower limb total joint replacement surgery.

Materials and Methods:

This study utilized a review of literature spanning from 2013-2020 in the using OVID, Google Scholar, PubMed with keywords including "total joint arthroplasty", "low molecular weight heparin," "direct oral anticoagulant," and "deep vein thrombosis." Meta-analyses or systematic reviews were excluded from the search, and 21 articles met the criteria.

Results

In patients undergoing large lower limb total joint arthroplasty, studies showed that prophylaxis with DOACs was equally as, or more efficacious than LMWH agents regarding preventing postoperative venous thromboembolism with low and comparable incidence of bleeding events.

Conclusion

With cognizance of the appropriate dosing, contraindications, and patient education, DOACs are an efficacious and superior alternative to LMWH for VTE prophylaxis in patients who have undergone total hip or knee arthroplasty. The restrictions and guidelines for each drug published by the manufacturer should be strictly adhered to for patient safety. Future studies are required to compare the efficacy of different DOACs against each another, using LMWH as a comparison.

Biography

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