

Efficacy and Safety of Low Molecular Weight Heparin in Patients With Mechanical Heart Valves: Systematic Review and Meta-Analysis

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Abstract

Background

Low molecular weight heparins (LMWHs) are not approved for patients with mechanical heart valves (MHVs). However, in several guidelines, temporary LMWH off-label use in this clinical setting is considered to be a valid treatment option. Therefore, we reviewed the efficacy and safety of LMWHs in patients with MHVs.

Methods

MEDLINE and CENTRAL databases were searched from inception to June 2013. Review articles and references were also searched. We included experimental and observational studies that compared LMWHs with unfractionated heparin (UFH) or vitamin K antagonists (VKAs). Data were analyzed and pooled to estimate odds ratios (ORs) with 95% confidence intervals (CIs) for thromboembolic and major bleeding events. Statistical heterogeneity was evaluated with the I(2) -test.

Results

Nine studies were included: one randomized controlled trial (RCT) and eight observational studies, with a total of 1042 patients. No differences were found between LMWHs and UFH/VKAs in the risk of thromboembolic events (OR 0.67; 95% CI 0.27-1.68; I(2) = 9%) or major bleeding events (OR 0.66; 95% CI 0.36-1.19; I(2) = 0%).

Conclusions

The best evidence available might support the temporary use of LMWHs as a prophylactic treatment option in patients with MHVs. However, conclusions are mostly based on observational data (with large CIs), and an adequately powered RCT is urgently needed in this clinical setting.

Keywords

coumarins; heart valve prosthesis; heparin; heparin, low-molecular-weight; warfarin