

**Abstract**

**Original Paper**

**The Effectiveness of Levosimendan in Clinical Characteristics and Haemodynamic, in Patients Undergoing High-Risk Cardiac Surgery: A Systematic Review of Randomized, Clinical Trials**

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**Abstract**

**Aim:** to evaluate the haemodynamic effects, perioperative and post-operative clinical characteristics of Levosimendan in in patients undergoing high-risk cardiac surgery.

**Methods:** The review of the literature was based on a keyword strategy and pre-determined inclusion and exclusion criteria. The citation and reference list of the eligible articles were also screened for potentially relevant articles. The outcomes were haemodynamic characteristics, length of ICU stay, and mortality rate. All RCTs with outcomes of interest were included

**Results:** In total, 9 studies met the criteria and were included in the systematic review. Six studies assessed the effectiveness of Levosimendan towards Cardiac Output and Clinical characteristics under CABG and three studies assessed the effectiveness of Levosimendan in other surgeries under cardiopulmonary bypass (CPB).

Seven out of the nine studies demonstrated significant improvement in the haemodynamic results in the Levosimendan group. The two studies also reported improvement but the result were not statistically significant probably due to the small sample size Methodologically the quality of most studies was moderate due to the small sample size, which might impact upon the significance of the findings. Furthermore, small sample sizes restricted the author to control for other demographic and clinical confounding factors. Only 4 out the nine used power analysis calculation to estimate the required sample size to achieve statistical power. Only one paper performed a 4 blinded RCT with adequate to big sample size after power analysis

**Conclusions:** It is evident that Levosimendan has a significant impact on haemodynamics for patients in high risk surgery on both perioperative and post-operative period. No significant effect on mortality and morbidity rates.

**Keywords:** “clinical trials”; “Levosimendan”; “CABG”; “High Risk Cardiac Surgery” and “CPB”