

Presentation Category: Original - Research Complete - Case Report/Series (Award-Ineligible)

Abstract Title

Intraoperative alprostadil for perioperative management of HIT

Learning Objective

Explain the safety and efficacy of utilizing intraoperative alprostadil as an alternative antithrombotic approach in cardiac surgery patients with suspected or known heparin-induced thrombocytopenia (HIT), with a focus on understanding its implications based on a single-center study.

Abstract

Purpose

Heparin-induced thrombocytopenia (HIT) is an antibody-mediated reaction to unfractionated heparin causing thrombocytopenia and a paradoxical thrombotic state. Given the heightened thrombotic risk associated with cardiac surgery and the immunogenicity of unfractionated heparin, current guidelines recommend delaying operations in HIT cases. However, in an emergent situation, guidelines recommend alternative antithrombotic approaches, including intraoperative alprostadil, despite the limited evidence. The study is aimed to explore the single-center use of intraoperative alprostadil in cardiac surgery patients with suspected or known HIT to enhance our understanding of its safety and efficacy.

Methods

This retrospective case series reviewed adult cardiac surgery patients who received intraoperative alprostadil between July 1, 2012, and April 30, 2023. The primary outcome assessed the composite incidence of deep vein thrombosis, arterial thrombosis, and ischemic stroke. Secondary outcomes included individual components of the primary composite outcome and mortality rates at 7-, 28-, and 90-days post-surgery. Additionally, the study investigated the impact of intraoperative alprostadil on hemodynamics and vasopressor requirements.

Results

The study involved 48 cardiac surgery patients with a median age of 56 years, primarily undergoing valve repair/replacement (33.3%), orthotopic heart transplant (31.3%), and durable ventricular assist device implant (25.5%). Cardiopulmonary bypass was used in 47 of 48 patients, with a median duration of 190 minutes. The majority of our patients were found to have HIT negative at 28 (58.3%). Acute HIT was observed in 6 (12.5%) of patients, while 3 (6.3%) were classified as Subacute HIT A, and 4 (8.3%) as Subacute HIT B. During the study, one patient developed post-operative deep vein thrombosis after a heart transplant, and two patients experienced new ischemic strokes, with one developing acute HIT postoperatively. Although no limb complications were observed, 12.5% of patients expired within 90 days. The mean vasopressor count during cardiac surgery was 3, with Phenylephrine IV push as the predominant choice in 91.7% of cases, followed by vasopressin IV push (85.6%) and norepinephrine continuous infusion (66.7%). Alprostadil was discontinued in 8.3% of surgeries due to refractory hypotension.

Conclusions

In an emergent situation necessitating immediate cardiac surgery, where postponing the operation is not possible, intraoperative alprostadil is a safe and effective alternative antithrombotic approach for patients with suspected or known HIT.

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