

# Vasoplegic Syndrome After Cardiovascular Surgery: A Review of Pathophysiology and Outcome Oriented Therapeutic Management

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## Abstract

Vasoplegic syndrome (VPS) is defined as systemic hypotension due to profound vasodilatation and loss of systemic vascular resistance (SVR), despite normal or increased cardiac index (CI). It occurs in 9- 44% of cardiac surgery patients after cardiopulmonary bypass (CPB) and is associated with significant morbidity and mortality. The pathogenesis of VPS is multifactorial involving the activation of contact, coagulation, and complement systems and the activation of leukocytes. platelets and endothelial cells resulting in an imbalance in the regulation of the vascular tone; inducible nitric oxide synthase [iNOS] triggered by inflammatory cytokines during CPB produces nitric oxide (NO), which increases vascular levels of cyclic guanosine monophosphate (cGMP), resulting in vasodilation. leading to postcardiac surgery VPS. Standard treatment options for severe refractory VPS are extremely limited and include vasopressor support. latest Surviving Sepsis Campaign guidelines also consider that the best therapeutic management of vascular hypo- responsiveness to vasopressors could be a combination of multiple vasopressors, including norepinephrine (NE) and early prescription of vasopressin. This review will address the various definitions, risk factors, pathophysiology, potential cardiac candidates, and potential therapeutic interventions for VPS following cardiac surgery focussed on the outcome. This review did not require any ethical approval or consent from the patients.

## Title Page

**Title:** Vasoplegic Syndrome After Cardiovascular Surgery: A Review of Pathophysiology and Outcome Oriented Therapeutic Management

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### **Covering letter**

To,

The Editor in chief,

JOCS

Sub: Submission of manuscript for publication.

Respected sir,

We are hereby submitting a manuscript entitled “**Vasoplegic Syndrome After Cardiovascular Surgery: A Review of Pathophysiology and Outcome Oriented Therapeutic Management**

” for publication in your journal for a Review. We wish to state that the manuscript has not been published earlier and is not under consideration for publication anywhere else. The informed consent was taken from the parents and that is mentioned in the manuscript.

**The source of funding and conflict of interest:** Nil.

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Thanks, and Regards.

Yours sincerely,

DR Vishnu Datt & co-authors

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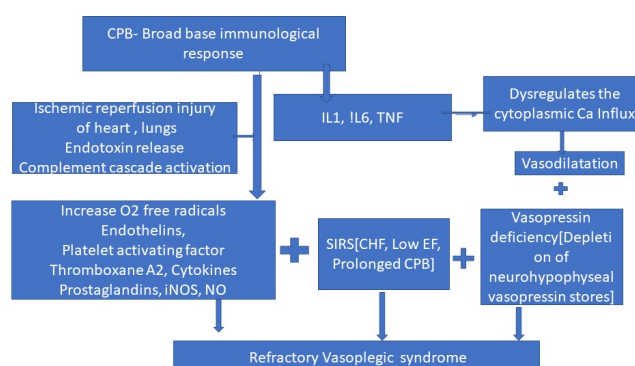
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Figure 1. Pathophysiologic mechanism contributing to refractory VPS following CPB



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Fig 2- systematic practical approach.docx available at <https://authorea.com/users/413861/articles/524973-vasoplegic-syndrome-after-cardiovascular-surgery-a-review-of-pathophysiology-and-outcome-oriented-therapeutic-management>

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