



Use of CytoSorb in patient with refractory vasoplegic shock



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Introduction

Cardiac surgery, particularly with cardiopulmonary bypass (CPB) and prolonged circulatory arrest, can result in vasoplegia during the post-operative period. In certain cases, vasoplegic shock becomes refractory to conventional treatments, such as vasoconstrictors and fluid therapy, greatly increasing the risk of multiorgan failure and mortality.

CytoSorb®, a hemoadsorption therapy, has emerged as a therapy capable of controlling cytokine storms. This report presents a case of severe postoperative vasoplegic shock effectively treated with an intensive CytoSorb® protocol.

Methods

A 65-year-old man with hypertension, COPD, OSAS, obesity, and a pacemaker underwent a Bentall procedure for ascending aorta and aortic valve replacement, along with myocardial revascularization (LIMA to LAD) and venous grafting to the right coronary artery due to coronary ostial bleeding. The procedure involved prolonged CPB (297 minutes) and aortic clamping (154 minutes). Post-CPB weaning was supported by high doses of norepinephrine (up to 0.20 µg/kg/min) to address significant vasodilation.

Initially, the patient's hemodynamics were stable, but severe vasoplegia soon developed, requiring norepinephrine (up to 0.40 µg/kg/min) and argipressin (0.03 U/min). He became unresponsive to maximal doses of vasopressors and adjunct therapies, including methylprednisolone (200 mg/day) and methylene blue (2 mg/kg infused over 20 minutes).

Continuous renal replacement therapy (CRRT) combined with intensive CytoSorb® hemoadsorption was initiated. Four CytoSorb® sessions were performed: two 12-hour sessions followed by two 24-hour sessions.

Results

Blood cultures remained negative throughout the hospital stay.

CytoSorb® therapy effectively reduced the cytokine storm, improving systemic blood pressure, decreasing pulmonary pressure, lowering lactate levels, reducing vasopressor requirements, and partially restoring diuresis (Figure 1).

Conclusion

For severe vasoplegic shock resistant to high-dose vasopressors, CytoSorb® therapy demonstrated significant hemodynamic improvement, enabling vasopressor discontinuation and systemic perfusion recovery.

This case highlights the potential of CytoSorb® as a critical intervention in refractory vasoplegic shock during cardiac surgery, warranting further validation through randomized controlled trials.

Figure 1: hemodynamic parameters before and after use of CytoSorb

