

USE OF CYTOSORB DURING CARDIOPULMONARY BYPASS AND CIRCULATORY ARREST IN ACUTE AORTIC DISSECTION SURGERY

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Introduction

This study focuses on evaluating the effect of CytoSorb®, a hemadsorption therapy, on vasoactive and inotropic support in patients undergoing surgery for acute aortic dissection (AAD) with circulatory arrest. The study compares two groups: one treated with CytoSorb® and one treated without it, looking at how this therapy affects the need for vasopressors and inotropes after surgery.

Methods

Cytosorb® Group: 29 patients who underwent AAD surgery with CytoSorb® between May 2022 and June 2024. No-Cytosorb® Group: 33 patients who underwent AAD surgery between January 2018 and May 2022, without CytoSorb®. No significant differences between the two groups, except for cardiopulmonary bypass temperature and circulatory arrest time (these factors did not significantly affect drug use as per regression analysis). The primary outcome was the change in the vasoactive-inotropic score (VIS), a measure of the degree of hemodynamic support required (i.e., vasopressors and inotropes). The VIS and drug doses were recorded at 8 time points from preoperative to 72 hours post-surgery.

Results

The group receiving CytoSorb® showed lower VIS values at every time point (figure 1), indicating reduced need for vasoactive drugs, with statistically significant differences seen from ICU admission ($p=0.026$) to 24 hours post-surgery ($p=0.029$). The VIS showed two peaks after surgery—one early after the discontinuation of cardiopulmonary bypass, and another around 6 hours post-surgery. There were no significant differences between the groups in terms of In-hospital mortality ($p=1$), Hospital length of stay ($p=0.1$), Postoperative highest creatinine value ($p=0.05$).

Conclusion

The study suggests that CytoSorb® may improve hemodynamic stability by reducing the need for vasoactive drugs in AAD surgery patients, as reflected by the lower VIS values in the CytoSorb® group. CytoSorb® may be beneficial in improving hemodynamic stability immediately after complex surgeries like AAD with circulatory arrest by reducing the reliance on vasoactive drugs.

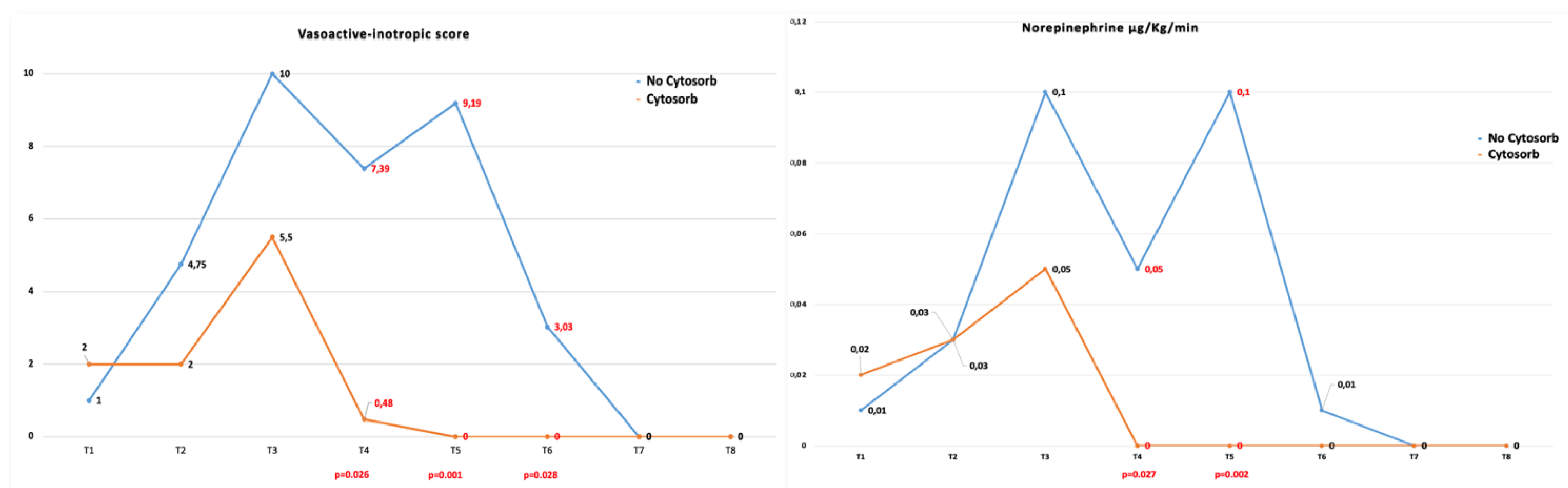


Figure 1: VIS and NE trend