EARLY USE OF CYTOSORB DURING CPB IN PATIENTS UNDERGOING SURGERY FOR BACTERIAL ENDOCARDITIS.

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Background

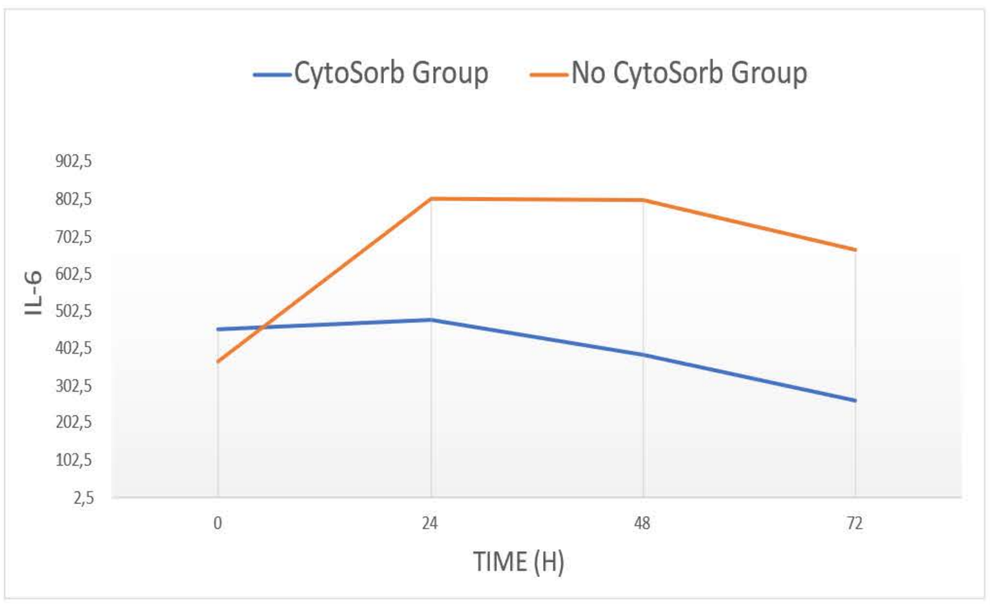
Infective endocarditis is a disease caused by microorganisms that enter the bloodstream and settle on the endocardium, heart valve, or intracardiac device. This disease is associated with high mortality and morbidity. Depending on the causative microorganism and symptoms, cardiac surgery may be needed, with an additional risk in these patients. Cardiopulmonary bypass (CPB) can cause a systemic inflammatory response. These conditions result in a release of key inflammatory mediators leading to an overshooting systemic hyperinflammatory state frequently associated with compromised hemodynamic and organ function. The early use of CytoSorb® during CPB in these patients might represent a potential approach to control the hyperinflammatory systemic reaction associated with the procedure itself and subsequent clinical conditions by reducing immune-regulatory mediators.

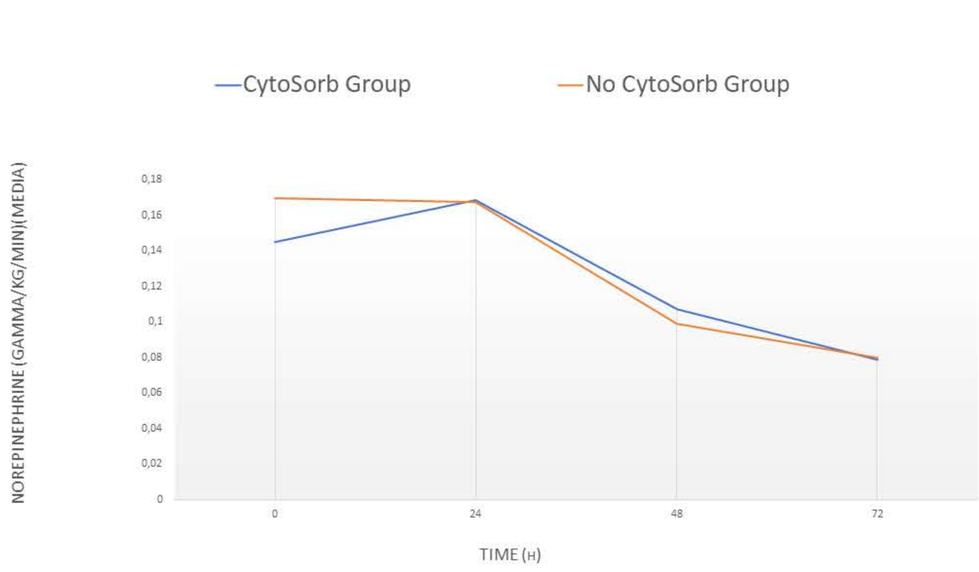
Methods

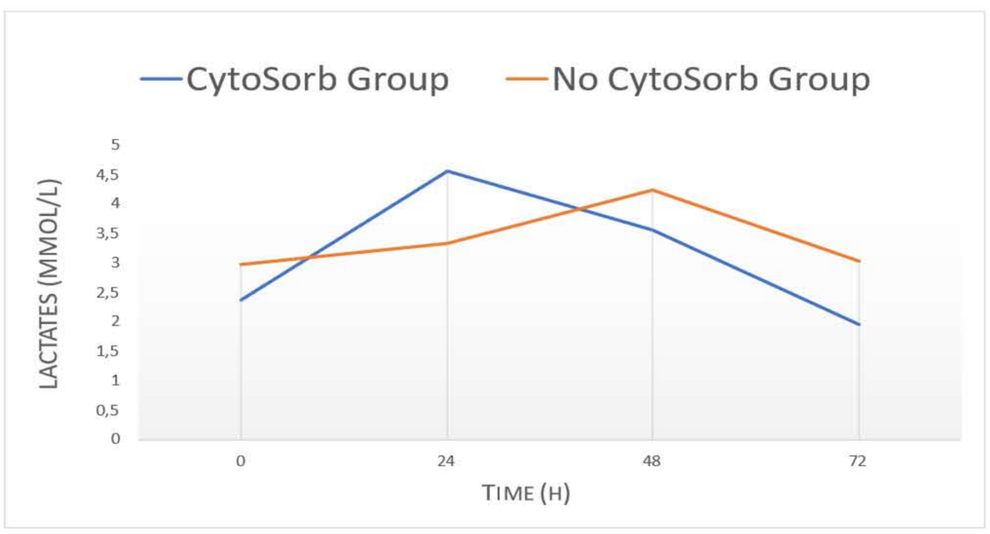
We describe 17 surgery patients with acute infective endocarditis undergoing valve replacement. During CPB we use cytosorb hemadsorption in 8 patients. 9 patients didn't receive the adsorbing cartridge. We tested laboratory parameters of inflammation (IL-6, WBC, PCR, procalcitonin, TNFα), hemodynamics parameters (vasopressor dose and MAP), metabolic variables (serum lactates), pre and after 24, 48, and 72 hours post-treatment. We made another treatment with cytosorb in ICU for 24 hours.

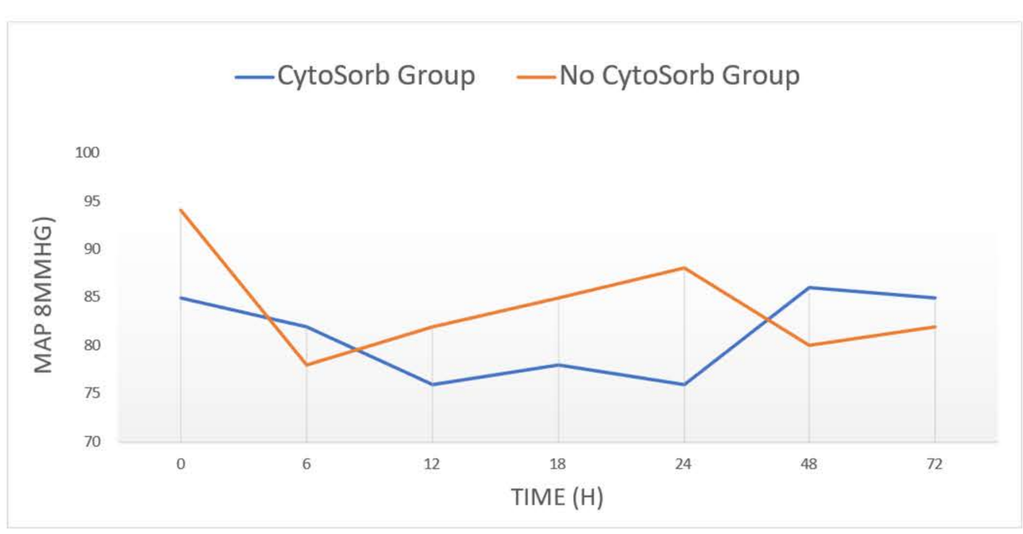
Results

Cytosorb treatment was associated with a mitigate response of key cytokine and clinical and metabolic parameters. Patients showed hemodynamic stability during and after the operation with a reduction of catecholamines. In the cytosorb group, we had 7 survivors and 1 non-survivor. In the non-CytoSorb® we had 8 survivors and 1 non-survivor. The time of CytoSorb® treatment was from 80 to 650 minutes duration (median 156 minutes). All patients showed an increase in inflammatory mediators at the end of surgery. This was followed by a decrease in levels of IL-6 and IL-8 after 24 hours and a returns to baseline levels after 72 hours post-surgery. We observed stabilization of hemodynamic parameters, with concomitant reduction of catecholamine need. Intraoperative hemoperfusion treatment was well tolerated and safe.









Conclusion

The early use of cytosorb may open up promising therapeutic options for critically ill patients with acute infective endocarditis during and after surgery, with cytokine reduction, improved hemodynamic stability, and organ function.