

Primjena adsorbera za izvantjelesnu purifikaciju krvi u bolesnika na mehaničko-cirkulacijskoj potpori srca: prikaz slučaja

Use of adsorber for extracorporeal blood purification in a patient with mechanical circulatory support: a case report

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KLJUČNE RIJEČI: adsorber, izvantjelesna membranska oksigenacija.

KEYWORDS: adsorber, extracorporeal membrane oxygenation.

CITATION: *Cardiol Croat.* 2018;13(11-12):473. | <https://doi.org/10.15836/ccar2018.473>

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Uvod: Mehaničko cirkulacijska potpora srcu sve je učestalija metoda liječenja zatajivanja srca u jedinicama intenzivne kardiološke skrbi te trenutno postoji više vrsta uređaja koji se mogu koristiti kao terapija do faze oporavka ili transplantacije srca. Izvantjelesna membranska oksigenacija (ECMO) zamjenjuje izvan-tjelesnim krvotokom funkciju i srca i pluća te se može koristiti kao mehanička potpora kod srčano-cirkulacijskog ili respiratornog zatajivanja.¹ Kod bolesnika sa ECMO cirkulacijskom potporom primijećeno je da u kratkom vremenskom periodu dolazi do snažne aktivacije upalnog odgovora, najčešće uslijed šoka u kojem su bili prije postavljanja, ali i radi prolaska krvi kroz dugačak vanjski nefiziološki sustav kanila, rotacijske pumpe i oksigenatora, gdje je značajno povišena mogućnost razvijanja sepse. U toj fazi bolesnici su hemodinamski nestabilni, ovisni o potpori vazoaktivnim lijekovima i nadoknadi intravenske tekućine, dok se u laboratorijskim nalazima prati porast upalnih parametara. Uпотреbom adsorbera za izvantjelesnu purifikaciju krvi (Cytosorb™) postiže se adsorpcija molekula od 5 do 55 kila Daltona, veličina u kojoj se adsorbiraju citokini te dio metabolita poput bilirubina, žučnih kiselina i amonijaka, čime se kontrolira pretjerani protuupalni odgovor organizma koji dovodi do oštećenja stijenke krvnih žila i ciljnih organa.

Prikaz slučaja: Prikazujemo slučaj 38-godišnjeg bolesnika koji je hospitaliziran u Zavodu za intenzivno kardiološko liječenje nakon pogoršanja njegove osnovne bolesti (kardiomiopatije), hemodinamske nestabilnosti te se implantira lijevo i desno strana mehanička cirkulacijska potpora uz primjenu adsorbera. Prati se pad upalnih parametara, dobar klinički i mikrobiološki odgovor. Ubrzo se podvrgava transplantaciji srca bez dodatnih komplikacija te brzog oporavka.

Zaključak: Primjena adsorbera putem ECMO ili hemodijalize je vrlo složena procedura i zahtjeva se krajnje odgovoran pristup intervencijama koje suradnjom multidisciplinarnog tima jamče uspjeh u liječenju.

Introduction: Mechanical circulatory support is becoming a more common therapy for end-stage heart failure in intensive cardiac care unit, and currently there are several types of devices that can be used as bridge therapy to recovery phase or heart transplantation. Extracorporeal membrane oxygenation (ECMO) replaces heart and lung function using extracorporeal blood flow and it can be used as mechanical support in cardio-circulatory or respiratory failure.¹ In a patient on ECMO support there is a strong activation of inflammatory response in a short period of time, usually due to shock before the initiation of support, but also, due to long, non-physiological blood flow through the piping, rotational pump and the oxygenator, where there is higher possibility of development of infection. In this phase patients are hemodynamically unstable, dependent on vasoactive support and substitution of intravenous fluids with a raise in inflammatory markers seen in laboratory results. Adsorbers for extracorporeal blood purification (Cytosorb™) can absorb molecules ranging from 5 to 55 kDa, which is the size where cytokines and some metabolites such as bilirubin, bile acids and ammonium can be absorbed, and it can be used to control inflammatory response which eventually can damage blood vessel walls and lead to target organs damage.

Case report: This case report will show a 38-year-old patient who was hospitalized in Department of Cardiac Intensive Care after deterioration of his primary condition (cardiomyopathy) with hemodynamic instability, which lead to placement of both left and right sided mechanical circulatory support with an adsorber. This led to a decrease of inflammatory markers with good clinical and microbiological response. Patients soon underwent heart transplantation without any major complications and fast recovery.

Conclusion: Use of adsorber via ECMO machine or dialysis machine is a very complex procedure which needs responsible approach to intervention and the only guarantee of success lays in a multidisciplinary approach.

RECEIVED:
October 27, 2018

ACCEPTED:
November 5, 2018



LITERATURE

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