Mehanička potpora u liječenju uznapređovalog srčanog zatajivanja – lokalna iskustva uspostave uspješnog programa kratkoročne ekstrakorporalne cirkulacije

Mechanical support in the treatment of advanced heart failure – a local experience of successful establishment of extracorporeal circulatory support program

Hrvoje Jurin*,
Boško Skorić,
Maja Čikeš,
Daniel Lovrić,
Jure Samardžić,
Jana Ljubas Maček,
Dora Fabijanović,
Hrvoje Gašparović,
Davor Miličić

Medicinski fakultet
Sveučilišta u Zagrebu, Klinički
bolnički centar Zagreb,
Zagreb, Hrvatska

University of Zagreb School of
Medicine, University Hospital
Centre Zagreb, Zagreb,
Croatia

KLJUČNE RIJEČI: ekstrakorporalna membranska oksigenacija, kardiopulmonalna resuscitacija uz upotrebu ekstrakorporalne oksigenacije, preživljenje.

KEYWORDS: extracorporeal membrane oxygenation, cardiopulmonary resuscitation using extracorporeal membrane oxygenation, survival.

CITATION: Cardiol Croat. 2016;11(10-11):392. | DOI: <http://dx.doi.org/10.15836/ccar2016.392>

***ADDRESS FOR CORRESPONDENCE:** Hrvoje Jurin, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000, Zagreb, Croatia. / Phone: +385-98-525002 / E-mail: hrvoje.jurin@gmail.com

ORCID: Hrvoje Jurin, <http://orcid.org/0000-0002-2599-553X> • Boško Skorić, <http://orcid.org/0000-0001-5979-2346> • Maja Čikeš, <http://orcid.org/0000-0002-4772-5549> • Daniel Lovrić, <http://orcid.org/0000-0002-5052-6559>

Jure Samardžić, <http://orcid.org/0000-0002-9346-6402> • Jana Ljubas Maček, <http://orcid.org/0000-0001-7171-2206> • Dora Fabijanović, <http://orcid.org/0000-0003-2633-3439> • Hrvoje Gašparović, <http://orcid.org/0000-0002-2492-3702> • Davor Miličić, <http://orcid.org/0000-0001-9101-1570>

Uvod: Kratkoročna cirkulacijska potpora korištenjem ekstrakorporalne membranske oksigenacije (ECMO) indicirana je u fazi akutnog i brzo deteriorirajućeg srčanog zatajivanja (SZ) ili kardiogenog šoka. Iako je upotreba ECMO-a sveprisutna, ne postoji čvrsti medicinski dokaz kako ECMO poboljšava preživljenje.^{1,2} **Cilj:** Ukazati na važnost prepoznavanja optimalnih bolesnika te upotrebu kritičkog promišljanja prilikom uspostave ECMO programa.

Pacijenti i metode: Provedena je retrospektivna analiza bolesnika sa SZ kojima je u razdoblju od 2011. do 2016. na Klinici za bolesti srca i krvnih žila u Kliničkom bolničkom centru Zagreb ugrađen ECMO – 38 bolesnika (31 muškarac, dob 54 ± 14,8 godina). Najčešća indikacija za ugradnju ECMO-a bilo je akutno SZ kod akutnog koronarnog sindroma (AKS) (13 slučajeva), potom pogoršanje stanja u okviru dilatacijske (10 slučajeva), ishemijske (7) i infiltrativne (3) kardiomiopatije te ostalo (5). 31 ugradnja ECMO-a poduzeta je u stadiju INTERMACS (ICS) 1 dok su preostali ugrađeni u ICS 2 stadiju SZ-a. 19 postupaka je provedeno kod bolesnika u fazi aktivnog kardiopulmonarnog reanimacijskog postupka (E-CPR).

Rezultati: Ukupno je preživjelo 8 bolesnika (21%). 20 bolesnika (53%) je uspješno skinuto s ECMO-a. Statistički je značajno lošije preživljenje bolesnika koji su ECMO dobili u sklopu E-CPR-a (31%) u odnosu na ostatak (74%, p=0.042). S ciljem prepoznavanja optimalnih bolesnika, prethodno navedeni promatrano razdoblje podijeljeno je na dva dijela – prvi (od 2011. do 2015.) te drugi dio (od 2015. do 2016. god.). Naime, početkom 2015. godine, uvidom u dotadašnje rezultate (uspješnost ECMO-a 38%) nastupila je promjena paradigme: ECMO se češće postavlja u ICS 2 stadiju te kod bolesnika s AKS-om. Ovakvom analizom dolazimo do podatka kako je uspješnost ECMO-a u drugom razdoblju čak 83%.

Zaključak: Ekstrakorporalna membranska oksigenacija predstavlja kratkoročnu potporu te je zamišljen kao metoda premoštenja do izlječenja ili do uvođenja drugog načina liječenja. Zbog navedenog je važno prilikom odluke o postavljanju ECMO-a biti kritičan prema vlastitim sposobnostima, a i prema potencijalu oporavka bolesnika – sagledati njegovo stanje u cjelini te planirati korake daljnjeg liječenja.

Introduction: Short-term mechanical circulatory support using extracorporeal membrane oxygenation (ECMO) is indicated in the acute and rapidly deteriorating stage of heart failure (HF) or cardiogenic shock. Although the use of ECMO is ubiquitously, there is still no solid medical evidence that it improves survival.^{1,2} **Objective:** To show the importance of identifying optimal candidates for ECMO implantation and critical thinking when establishing ECMO program.

Patients and Methods: We conducted a retrospective analysis of patients with HF in whom ECMO was used in the period 2011-2016 (31 men, age 54 ± 14.8 years). The most common indication for ECMO was acute HF within the acute coronary syndrome (ACS) (13 cases), followed by the deterioration of patients status in the context of dilatative (10 cases), ischemic (7) and infiltrative (3) cardiomyopathy (CMP) and other (5). 31 ECMO implants were taken in the stage INTERMACS (ICS) 1, while the remaining units were installed in the ICS 2 stage HF. 19 procedures were conducted in patients in the active stage of cardiopulmonary resuscitation procedure (E-CPR).

Results: Total number of survived patients is 8 (21%). In 20 patients (53%) ECMO was successfully removed. Statistically, significantly worse survival was in patients who had ECMO within the E-CPR (31%) compared to the others (74%, p = 0.042). With the aim of identifying optimal patient, the above observed period was further divided into two parts - the first (2011-2015) and the second part (2015-2016). At the beginning of 2015, a review of the outcomes (success of ECMO 38%) resulted in a change of paradigm: ECMO was often placed in the ICS 2 stage and in patients with ACS. Such analysis could conclude that the success of ECMO in the second period is even 83%.

Conclusion: Extracorporeal membrane oxygenation represents short-term support and is designed as a bypass method to complete healing or to other modalities of treatment. Because of this, it is important, when making a decision on setting up the ECMO, to be critical to their own abilities, and to the potential recovery of patients – perceive the whole situation and plan further steps of treatment.

LITERATURE

1. Stewart GC, Givertz MM. Mechanical circulatory support for advanced heart failure: patients and technology in evolution. *Circulation*. 2012;125(10):1304-15. DOI: <http://dx.doi.org/10.1161/CIRCULATIONAHA.111.060830>
2. Schmidt M, Burrell A, Roberts L, Bailey M, Sheldrake J, Rycus PT, et al. Predicting survival after ECMO for refractory cardiogenic shock: the survival after veno-arterial-ECMO (SAVE)-score. *Eur Heart J*. 2015;36(33):2246-56. DOI: <http://dx.doi.org/10.1093/eurheartj/ehv194>

RECEIVED:
October 3, 2016

ACCEPTED:
October 10, 2016