Michigan Medicine launches study of life-saving resuscitation treatment for sudden cardiac arrest

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Neumar-Bartlett ED-ECPR 12 (003).jpg

ANN ARBOR, Mich. – Even when rapidly treated, less than 10 percent of sudden cardiac arrest victims survive, according to the American Heart Association. That's why Michigan Medicine is launching a new study to examine the potential benefit of a life-saving resuscitation strategy for sudden cardiac arrest.

Sudden cardiac arrest is a life-threatening condition in which the heart suddenly stops beating and blood stops flowing to the brain and other organs within the body.

The study, named Extracorporeal CPR for Refractory Out-of-Hospital Cardiac Arrest (EROCA), will examine the potential benefit of quickly transporting out-of-hospital sudden

cardiac arrest patients with ongoing CPR and advanced cardiovascular life support (ACLS) to an emergency department capable of performing extracorporeal cardiopulmonary resuscitation (ECPR). It will be performed locally in partnership with Ann Arbor Fire Department, Huron Valley Ambulance and the Michigan Center for Integrative Research in Critical Care.

“Our mission is to provide better emergency care for patients with life-threatening conditions, such as cardiac arrest,” says Robert Neumar, M.D., Ph.D., chair of emergency medicine at Michigan Medicine and co-leader of the study. “This study has the potential to transform the way we treat patients who experience sudden cardiac arrest outside of the hospital and save the lives of those we currently cannot save.”

Currently, the standard practice for treatment of an out-of-hospital cardiac arrest is for emergency medical responders to perform CPR and ACLS at the scene until either the heart is restarted or resuscitation efforts are discontinued due to futility. This practice is supported by the fact that all currently proven therapies can be delivered by emergency medical technicians and paramedics in the field. However, promising new investigational strategies have emerged that could save more lives, but are only feasible in the hospital.

One such therapy is ECPR, which uses a machine to take over the function of the heart and lungs until the heart can be restarted. During ECPR, blood from the patient’s veins is passed through an extracorporeal membrane oxygenation device that adds oxygen into the blood and then pumps the blood back into the arteries.

The EROCA study will examine if it is feasible and beneficial to quickly transport out-of-hospital cardiac arrest patients with ongoing CPR and ACLS to an emergency department capable of rapidly initiating ECPR if standard therapy is unsuccessful.

EROCA will enroll adult sudden cardiac arrest patients within the city of Ann Arbor who do not recover after initial attempts of CPR and ACLS.

“Since we don’t yet know which treatment strategy is best, some patients will receive standard care at the scene and some patients will be rapidly transported with CPR and ACLS in progress to the Michigan Medicine Emergency Department where they will be evaluated for ECPR if they remain in cardiac arrest,” Neumar says.

“ECPR is a form of extracorporeal membrane oxygenation, a technique that we have used for decades at the University of Michigan and around the world,” says study co-lead Robert Bartlett, M.D., professor emeritus of surgery at Michigan Medicine and pioneer of this life-saving therapy. “The success of ECPR in treating out-of-hospital cardiac arrest will depend on how quickly patients arrive in the Emergency Department, and the EROCA study is designed to get patients there as quickly as possible.”

The EROCA study is funded by the National Heart, Lung, and Blood Institute and will take place under the U.S. Food and Drug Administration’s Exception From Informed Consent regulations.

The use of Exception From Informed Consent is limited to situations when the person’s life is

at risk, the best treatment is not known, the participant might benefit and it is not possible to obtain informed consent from the patient or a legally authorized representative before the treatment must be given. Under Exception From Informed Consent, eligible patients are automatically enrolled prior to obtaining consent. Once a legally authorized representative is located or the patient is able give consent, they will be told about the risks and benefits of the study and asked to give their permission to continue in the study.

Anyone who is a potential candidate for the study has the opportunity to opt-out of participating ahead of time. They can request an opt-out bracelet by contacting the study project manager at 734-647-0574 or www.medicine.umich.edu/dept/emergency-medicine/eroca-study.

Those who already have a File of Life medical ID card can add “EROCA study declined” to it. Those who don’t have a File of Life card can contact the study project manager at 734-647-0574 to obtain one. If you use a File of Life card, it is best to keep it with you at all times in your wallet or purse.

For more information about the EROCA study, including opt-out information, please visit: www.medicine.umich.edu/dept/emergency-medicine/eroca-study.

The Michigan Medicine EROCA study team is available to speak to individuals and groups, or appear at events to talk about the trial. For more information, contact EM-EROCA-Study@med.umich.edu or 734-647-0574.