

Dr Pascal Stammer

Abstract

Resuscitated cardiac arrest patients have gone through a dramatic health condition where the blood flow, thus the oxygen delivery to the organs, and the brain in particular, has been interrupted or reduced to a very low level. As such, in the post-resuscitation phase, the patients' brains suffer from the consequences of the previous oxygen and nutrients deprivation and physicians seek to provide the best care to them. Except general guidelines for post resuscitation care advocating "good" clinical care with neuroprotection, many optimal treatment modalities are not well known. Most challenging questions turn around the best sedation strategy (application of an anesthesia to the brain is supposed to protect the brain) and the optimal blood pressure is also unknown (it is stipulated that a slightly higher blood pressure might be beneficial for brain protection). Finally, avoidance of fever could also be beneficial to protect the brain. The STEPCARE multinational randomized clinical trial, the largest of its kind in cardiac arrest care, aims to find answers to these questions. Furthermore, a number of sub studies of this trial will address other important questions regarding prognostication after cardiac arrest.

Dr Philippe Degrell

Abstract

The aim of the European Registry of Cardiac Arrest (EuReCa) network is to provide high quality evidence on epidemiology of out-of-hospital cardiac arrest (OHCA) in Europe by supporting and developing cardiac arrest registries and performing European-wide studies. EuReCa THREE is the third prospective cohort study on epidemiology of OHCA and involves around 30 European countries during 3 months. CARDLUX-2 is the extension study conducted in Luxembourg to cover a total of 12 months data collection. Data will be collected on cardiac arrest cases attended, resuscitation attempted, patient and cardiac arrest event characteristics and outcomes (including return of spontaneous circulation, status on hospital arrival and discharge).

Dr Yvan Devaux

Abstract

Cardiac arrest is a leading cause of death and neurological disabilities. Being able to predict neurological outcome after cardiac arrest, in other words if a patient will develop severe and irreversible neurological sequelae, would help tailoring healthcare and take clinical decision. This would allow informing patient' relatives at an early stage and maximizing hospital resources to those who would mostly benefit. While a multimodality approach is recommended to predict clinical outcome after resuscitation from cardiac arrest, this approach is not fully accurate. Hence, there is an extensive research ongoing for novel biomarkers to aid in this prognostication task. Protein biomarkers have proven useful and serum levels of neuron specific enolase are included in prognostication guidelines. Other protein biomarkers are under investigation. Our group at the Luxembourg Institute of Health has been investigating the capacity of RNA biomarkers to aid in outcome prediction after cardiac arrest. With this research starting in the earlier 2010's, the team has uncovered a few RNAs which blood levels are associated with outcome after cardiac arrest. These RNAs comprise both short and long RNA molecules. Further research has uncovered the predictive value of a circular RNA, and current research is extending to multi-marker modalities ("multiomics"). These novel RNA biomarkers, measured non-invasively in a blood sample, may be integrated in future prognostication methods to improve healthcare of patients with cardiac arrest.