



Service Priorities and Programmes Electronic Presentations

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Using ECMO in resuscitation of refractory cardiac arrest: a retrospective review of a pilot service

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Introduction

Despite advances in resuscitation science, the outcomes of patients received CPR remain poor (0.8-5%). Extracorporeal membrane oxygenation (ECMO) had been employed in suitable patients for resuscitation (ECMO-CPR or e-CPR) and was reported to have improve survival in recent literatures. It involves setting up a veno-arterial ECMO for circulatory support emergently in patient failed conventional CPR. As such, a pilot e-CPR program was started in Queen Mary Hospital since March 2015 by Department of Adult Intensive Care collaborating with the Accidental and Emergency Department (AED) and cardiology division of the Department of Medicine for patients who failed convention CPR.

Objectives

The purpose of the study is to evaluate the result of the pilot e-CPR program in out of hospital cardiac arrest (OHCA) and in-hospital cardiac arrest (IHCA) from March 2015 to December 2016

Methodology

This is a retrospective analysis of the patient data from patient record. Inclusion criteria of e CPR included patients who suffered from refractory cardiac arrest due to a potentially reversible cause not responding to more than 20 minutes conventional CPR. Exclusion criteria included unwitnessed arrest, asystole as initial rhythm or on arrival to AED, no basic life support more than 10 min after collapse, more than 60 min upon AED arrival since collapse, age older than 60, known end-staged organ failure and malignancy, underlying irreversible disease e.g. (un-repaired congenital heart disease) and a valid DNA-CPR order /patient advanced directive for not performing CPR. However, the on-site ICU physician can make adjustment of the exclusion criteria based on clinical evaluation.

Result

From Mar 2015 to Dec 2016, 32 patients (IHCA 16; OHCA 16) with cardiac arrest who did not responsive to conventional CPR underwent E-CPR. Median age was 52.5-year-old (IQR 39.5-60) and 25/32 (78%) were male sex. 21 out of 32 patients (58%) had bystander CPR performed during cardiac arrest (IHCA 16/16, 100%; OHCA 5/16, 31%). For the primary outcome, 9 out of 32 (28%) patients survive with hospital discharge (IHCA 6/16, 38%; OHCA 3/16 19%). 8 out of 32 (25%) patients survive with good neurological outcome (Cerebral Performance Categories 1-2). (IHCA 6/16, 38%; OHCA 2/16, 13%).

Conclusion: the outcome of both the IHCA and OHCA are comparable to international benchmark. We need to strengthen the low bystander CPR rate in order to improve the OHCA survival.