Service Priorities and Programmes

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A complete clinical audit on utilization of end-tidal capnometry in out-of-hospital cardiac arrest patients in emergency department

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Introduction

End-tidal CO2 capnometry (ETCO2) is recommended to be used in resuscitation of patients with cardiac arrest according to the ACLS 2010 guideline. It helps to monitor the quality of chest compression and indicate the return of the spontaneous circulation (ROSC). From the Cardiac Arrest Registry (CAR), we found that there was inconsistent use of the ETCO2 in resuscitation of out-of-hospital cardiac arrest (OHCA) patients and inadequate documentation of ETCO2 values in resuscitation chart.

Objectives

To evaluate and enhance the compliance of using the ETCO2 in resuscitation of patients with cardiac arrest. Impact on the outcome of resuscitation was also evaluated.

Methodology

Compliance audit was traced from the electronic databases and resuscitation records. The audit was divided into 3 phrases, namely pre-intervention period (July 2012 to December 2012), washout period (January 2013) and post-intervention period (February 2013 to June 2013). Intervention adopted included: a) availability of end-tidal capnometry equipments and tubings was enhanced in the resuscitation room; b) educational materials and training sessions to doctors and nurses on the use of end-tidal capnometry. Data, including the compliance rate of the use and outcomes of resuscitation (ROSC, survival to admission [STA] & survival to discharge [STD]), was compared between the pre- and post- intervention period using the Chi square test & the Fisher's exact test.

Result

The compliance rate of using ETCO2 in resuscitation raised from 50.6% to 79.4% ($p < 0.0001$) and the rate of ROSC improved from 23.6% to 30.4% ($p< 0.113$) after the

intervention period. The STA rate increased from 21.9% to 28.4% while the STD rate increased from 2.1% to 2.6% though the difference could not reach statistical significance with limited sample size. The compliance rate of using the ETCO2 in resuscitation of patients with cardiac arrest improves with the intervention. Resuscitation using ETCO2 may have potential benefit in survival of patients with cardiac arrest.