

laide de bicarbonates et le devenir chez les patients souffrant d'un ACEH. Dans ce contexte, il serait adéquat de réaliser un essai clinique afin de trancher définitivement sur cette question.

Keywords: out-of-hospital cardiac arrest, sodium bicarbonate

MP31

Debriefing critical incidents in health care: a review of the evidence

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Introduction: Emergency health care providers (HCPs) regularly perform difficult medical resuscitations that require complex decision making and action. Critical incident debriefing has been proposed as a mechanism to mitigate the psychological effect of these stressful events and improve both provider and patient outcomes. The purpose of this updated systematic review is to determine if HCPs performing debriefing after critical incidents, compared to no debriefing, improves the outcomes of the HCPs or patients. **Methods:** We performed a librarian assisted systematic review of OVID Medline, CINAHL, OVID Embase and Google Scholar (January 2006 to February 2017) No restrictions for language were imposed. Two investigators evaluated articles independently for inclusion criteria, quality and data collection. Agreement was measured using the Kappa statistic and quality of the articles were assessed using the Downs and Black evaluation tool. **Results:** Among the 658 publications identified 16 met inclusion criteria. Participants included physicians, nurses, allied health and learners involved in both adult and pediatric resuscitations. Findings suggest that HCPs view debriefing positively ($n=7$). One moderate quality study showed that debriefing can enhance medical student and resident knowledge. Several studies ($n=8$) demonstrated at least some improvement in CPR and intubation related technical skills. Debriefing is also associated with improved short term patient survival but not survival to discharge ($n=5$). Two studies reported benefits to HCPs mental health as evidenced by improved ability to manage grief and decreased reported symptoms of Post-Traumatic Stress Disorder (PTSD). **Conclusion:** We found HCPs value debriefing after critical incidents and that debriefing is associated with improved HCP knowledge, skill and well-being. Despite these positive findings, there continues to be limited evidence that debriefing significantly impacts long term patient outcomes. Larger scale higher quality studies are required to further delineate the effect of structured debriefing on patient and provider outcomes.

Keywords: debrief, resuscitation, emergency service, hospital

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Paramedics using near-infrared spectroscopy in out-of-hospital cardiac arrest: a feasibility study

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Introduction: Long-term outcomes following out-of-hospital cardiac arrest (OHCA) remain poor. Two-thirds of OHCA patients surviving to hospital admission die from neurological injuries, and of those discharged, one-third have irreversible cognitive disabilities due to cerebral ischemia. Near-infrared spectroscopy (NIRS) is a non-invasive imaging technique which is able to continuously detect regional cerebral oxygenation (rSO₂). NIRS monitoring has been used to measure rSO₂ during in-hospital cardiac arrest resuscitation. Our study is the first feasibility study of paramedics applying NIRS monitoring during

OHCA resuscitation. **Methods:** One NIRS monitor (Equanox 7600; Nonin, Plymouth, MI, USA) was placed on an Emergency Response Unit (ERU) with York Region Paramedic Services. ERU paramedics were trained to apply the device to patients foreheads during OHCA resuscitation and record rSO₂ until arrival at hospital or termination of resuscitation. Paramedics did not alter any aspect of patient care by using the NIRS monitor. They were instructed to press an action marker on the device during ACLS interventions (e.g. defibrillation, intubation, medications, etc). rSO₂ data was later downloaded for analysis. Our feasibility criteria was to obtain >70% of data files with rSO₂ data and >70% of data files with event markers. **Results:** Data was collected from 24 OHCA patients over a period of 10 months. 19 cases (79%) files contained rSO₂ data and 17 cases (71%) had event markers. The rSO₂ data present in each file varied widely from complete recording for the entire call duration to sporadic brief readings. Event markers varied from 1 to 10 markers spaced throughout the cases. **Conclusion:** This is the first study to demonstrate that the use of NIRS by paramedics as part of OHCA resuscitation is feasible. Future studies are required to determine how rSO₂ monitoring can be used to guide OHCA resuscitation. The results of this study will help inform protocols for future studies evaluating the use of NIRS in the out-of-hospital setting.

Keywords: out-of-hospital cardiac arrest, cerebral oxygenation, feasibility

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Refining nursing symptom-driven guidelines for ED laboratory test ordering

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Introduction: Recent reports suggest that up to 30% of medical interventions provide no benefit to patients. In a response to ED overcrowding, guidelines commonly exist to guide blood test ordering in patients waiting to see a physician. In many cases, this increases the use of tests without benefiting patients. We describe a quality improvement project designed to reduce the number of laboratory tests considered routine for waiting patients. **Methods:** A multidisciplinary group reviewed existing symptom-prompted nursing blood test guidelines for serum electrolytes and glucose, renal function tests, liver tests, lipase, toxicological tests and beta Human Chorionic gonadotrophin levels. Order sets were revised with tests eliminated from the routine panels that were not felt to routinely contribute to patient care. The new guidelines were communicated to nursing staff in a series of educational sessions, and the revised guidelines were posted at nursing stations. Physician ordering practice was not changed. A pre-post evaluation compared the period 1 December 2014 - 30 November 2015 with 1 December 2015 - 30 November 2016. Clinical outcomes and patient wait times were not evaluated. **Results:** The use of tests in these categories decreased 32% between the two periods, at a net saving of \$210,246. The largest savings came from total protein (73% decrease), Creatine kinase (68%), chloride (64%), glucose (49%), and albumin (47%). Sodium/Potassium testing decreased by only 13%. The only increase in test ordering recorded was AST (3% increase). **Conclusion:** Simply changing symptom driven order sets resulted in significant savings to the system. In the era of Choosing wisely regular review of lab order sets is indicated. Further study is needed to assess the effect of these changes on patient flow and on clinical outcome.

Keywords: Choosing Wisely, emergency laboratory testing