

Dispatcher-Assisted Telephone Cardiopulmonary Resuscitation Using a French-Language Compression-Ventilation Pediatric Protocol

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Received date: February 20, 2018; Accepted date: February 26, 2018; Published date: March 05, 2018

Citation: Peters M, Ghuysen A (2018) Dispatcher-Assisted Telephone Cardiopulmonary Resuscitation Using a French-Language Compression-Ventilation Pediatric Protocol. J Intensive Crit Care Vol.4 No.2: 8

Commentary

Although uncommon in children, out of hospital cardiac arrest (OHCA) remains an extremely devastating event, associated with a high mortality rate. Indeed, survival hospital discharge rate for infant OHCA only reaches 8% [1].

Our results in a prospective randomized study of a telephone dispatcher-assisted cardiopulmonary resuscitation (T-CPR) algorithm for infant (aged <1 year) reveals that such protocols have the potential to increase the number of bystander CPR and to significantly improve resuscitation performance among previously trained or untrained volunteers. Despite these encouraging results, we feel that several concerns should be highlighted.

The first one is just about the time cost for early recognition of cardiac arrest. Such recognition remains complex to establish for dispatcher resulting in unclear situations because of equivocal qualified breathing confirmations and omission of bystander CPR delivery. Indeed, failure to recognize agonal breathing and conflicting information provided by the caller remain a daily challenge in emergency medical service (EMS) centres [2,3]. Our results confirm that assessing breathing in unconscious victims is not only difficult, but also time consuming for untrained, but also for previously trained, rescuers. This time-limiting step should be viewed with the perspective of its poor performance: hardly half of the volunteers reached standards levels for airway opening and breathing checking. In that view, we believe that a simplification of the procedure for patients' normal breathing check should be adopted as emphasized by the American Heart Association [4]. A similar procedure for paediatric OHCA could enhance early detection by telephone [5], while few adverse events have been reported in case of CPR undertaken in victims who are not in cardiac arrest [6].

The second issue has to deal with ventilation efforts. Conventional CPR (chest compressions with rescue breaths) superiority over chest compression only CPR in children remains unclear, with International Liaison Committee on Resuscitation (ILCOR) questioning the level of evidence for conventional CPR recommendation [7].

Indeed, while conventional CPR has been related to better outcomes and better survival results [8,9], other study suggests

similar outcomes for infants with cardiac etiology regardless of resuscitation method [10]. We identified that despite major interruptions in chest compressions and excessive tidal volume delivered during ventilation, our T-CPR protocol could significantly increase successful mouth to mouth ventilations. However, these results should be mitigated by the low rate of successful first five rescue breathes, combined with the long time period for their delivery. Regarding the preponderance of respiratory etiologies in paediatric OHCA, ventilation has always been considered as a key component for infant CPR. The actual benefit of this step in the T-CPR protocol should however be questioned, as well as the actual impact of using a Circulation, Airway, Breathing sequence [11] in reducing the time to first chest compressions, even though it might delay the first ventilation by a few seconds. Finally, reports of chest-compressions-only CPR being associated to more favourable paediatric outcomes compared with no CPR [12], make it rational to consider this simpler technique at least in case of inability for the rescuer to deliver ventilations.

Further investigations should be conducted to evaluate these issues. In that perspective, we believe that video conferencing has the potential to overcome several aspects of difficulties such as cardiac arrest detection, ventilation delivering or compressions quality [13].

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