

Oral presentation

Quality of CPR has little impact on cerebral oximetry during in-hospital cardiac arrest – preliminary data from three case reports

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Introduction

The quality of CPR is associated with survival [1]. The goal of CPR is to provide sufficient cerebral blood flow (CBF). This prospective and observational study was planned to evaluate if the quality of CPR is correlated to a surrogate marker for CBF as estimated by regional cerebrovascular oxygen saturation (rSO₂).

Methods

As a preliminary report, a case series of three cardiac arrest patients is presented herein. We used a defibrillator with a quality CPR-technology (Philips, HeartStart MRx Q-CPR™), which evaluates resuscitation from compression to compression. rSO₂ was assessed simultaneously with a near-infrared spectroscopy device (Invos, Somanetics, Troy, MI).

Results

Case 1

75 years old male was resuscitated from asystole. The average compression frequency was 96/min and depth 56 mm. Only 1% of compressions were committed with incomplete release from chest and flow time was 100%. The values for rSO₂ were 15–18%, and quality of CPR showed no reflections to rSO₂. A minor increase of rSO₂ was observed after ROSC.

Case 2

81 years old female was resuscitated from PEA. Compression frequency was 103/min and depth 53 mm, 1% with

incomplete release, and flow time 84%. There was an almost immediate increase in rSO₂ from 25% to 38%. She achieved ROSC after 11 min where after rSO₂ rose to 67%. This patient is a secondary survivor.

Case 3

72-yr old female was resuscitated 17 min from asystole. Average compression frequency was 109/min, and depth 44 mm. 93% of compressions were adequate in depth but 10% of had an incomplete release. Flow time was 90%. During the entire procedure the rSO₂ was 15%, despite the relatively good quality of CPR. No ROSC was achieved.

Conclusion

The only survivor had markedly higher rSO₂ values than the non-survivors but, on the average, there was no correlation between the quality of CPR and rSO₂. Other factors than just the quality of CPR are obviously of major importance for the restoration of cerebral blood flow.

References

1. Abella BS, Sandbo N, Vassilatos P, et al.: **Chest compression rates during cardiopulmonary resuscitation are suboptimal: a prospective study during in-hospital cardiac arrest.** *Circulation* 2005, **111**:428-434.