

Poster presentation

## End-tidal CO<sub>2</sub> in mechanical versus conventional CPR

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### Introduction

Out-of-hospital cardiac arrest (OHCA) generally has a poor prognosis. The development and use of a mechanical chest compression device has been suggested as a measure to achieve sufficient and continuous cardiopulmonary resuscitation (CPR). The mechanical chest compression device (Autopulse®) consists of a battery-driven board with a band attached that applies a 20% anterior-posterior compression of the patient's thorax at a frequency of 80 per minute. The aim of this study was to compare patients treated with the mechanical chest compression device (Autopulse®) with patients treated with conventional CPR. End-tidal CO<sub>2</sub> (ETCO<sub>2</sub>) was used as a qualitative measure of circulation. We hypothesized that patients treated with Autopulse® had a higher ETCO<sub>2</sub>.

### Methods

The study was conducted as a retrospective study. The patients included had OHCA and were treated by the mobile emergency care unit in Copenhagen in 2007. Only intubated patients with at least one registered ETCO<sub>2</sub> value were included. The treating physician prospectively recorded data in a database. If patients had more than one CO<sub>2</sub> value registered we analyzed both their median and maximum CO<sub>2</sub> values. The two groups were compared using the mean values (standard deviation) of either the median or max CO<sub>2</sub>. Mann-Whitney rank sum test was used for statistical analysis.

### Results

In total, 491 patients had cardiac arrest, of those 158 where intubated and had at least one CO<sub>2</sub>-value. 91(67,6%) patients with a mean age of 63 (15.3) were treated with Autopulse®, and 67 (42,4%) aged 64.7 (17.4)

with conventional CPR. The mean values of both the median and the max CO<sub>2</sub> did not differ between the two groups: 4,4 (2,0) kPa vs. 4,8 (2,0) kPa (p = 0.63) and max CO<sub>2</sub> 4,9 (2,2) kPa vs. 5,3 (2,4) kPa (p = 0.89), respectively.

### Conclusion

We were not able to detect a significant difference between Autopulse® and conventional CPR in the amount of CO<sub>2</sub> expired. However, the study has multiple weaknesses and further investigations are proposed. Whether or not Autopulse® should be preferred in daily use depends on survival and neurological outcome in future studies.