Survival from Out-of-hospital-cardiac-arrest (OOHCA) at different Response time (RT) intervals

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PURPOSE OF THE STUDY

Some argues that survival for OOHCA are poor if the RT are more than 12 (1) or 15 (2) minutes. We wanted to calculate survival for Paramedic-observed-arrest and at different RT-intervals in our EMS-system where median RT exceeds 10 minutes, but the bystander CPR-rate is relatively high.

MATERIALS AND METHODS

Register based study from Vestfold & Telemark 2007-15 (EMS-area 15.102 km², average population 369.000, 18 Ambulance-stations with 1-4 vehicles). The Emergency Medical Communication Centre Tønsberg receives the medical emergency phone 113, and dispatches all vehicles. We used Chi²-tests for statistics. Incidence rate was calculated as patient numbers per 100.000 residents per year.

RESULTS

The EMS attended 76.1 and started or continued CPR in 60.9 patients per 100.000 person-year during the study period. The RT for the first vehicle was not documented in 196 cases (Incidence 5,9). EMS were present and observed the arrest 334 times (Incidence 10.1) . The incidence of survival to day 30, (SD30) was 8.1.

All patients and results in numbers

Response time (RT) group	Para-medical observed arrest	RT >0-<15 min	RT 15-<30 min	RT 30-<45 min	RT >45 min	RT not documented	Sum
EMS attended OOHCA	334	1 565	375	42	14	196	2 526
EMS started or continued CPR	315	1 255	264	30	7	152	2 023
ROSC on site	167	476	66	3	2	57	771
ROSC on admission	135	360	51	2	0	44	592
Alive at D30	90	133	21	2	0	22	268

ROSC and survival in percentages of started or continued CPR

Maximal RT for SD30 were 37 minutes over all, and 30 minutes (3) for the “Utstein comparator group”. The bystander CPR-rate rose from 46 % to 78 % during the study period.

CONCLUSION

The SD30 was highest when the hypothetical RT was Zero (Paramedic observed arrest) The difference in SD30 between, paramedic observed, >0-<15 and 15-<30 minutes were both significant, but there were no significant difference in SD30 for RT >0<15 and 15-<30 minutes. Survival was possible at response times far beyond 15 minutes, as long as bystanders provided CPR until the EMS arrived.

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