

When to stop CPR: Is there a golden hour of resuscitation?

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Purpose of the study:

There is limited data about relationship between duration of cardiopulmonary resuscitation (CPR) in out-of-hospital cardiac arrest (OHCA) and favourable outcome and also about a maximum time-period for successful resuscitation at all[1]. We investigated the influence of CPR-duration and favourable outcome in patients admitted to hospital with return of spontaneous circulation (ROSC).

Materials and methods:

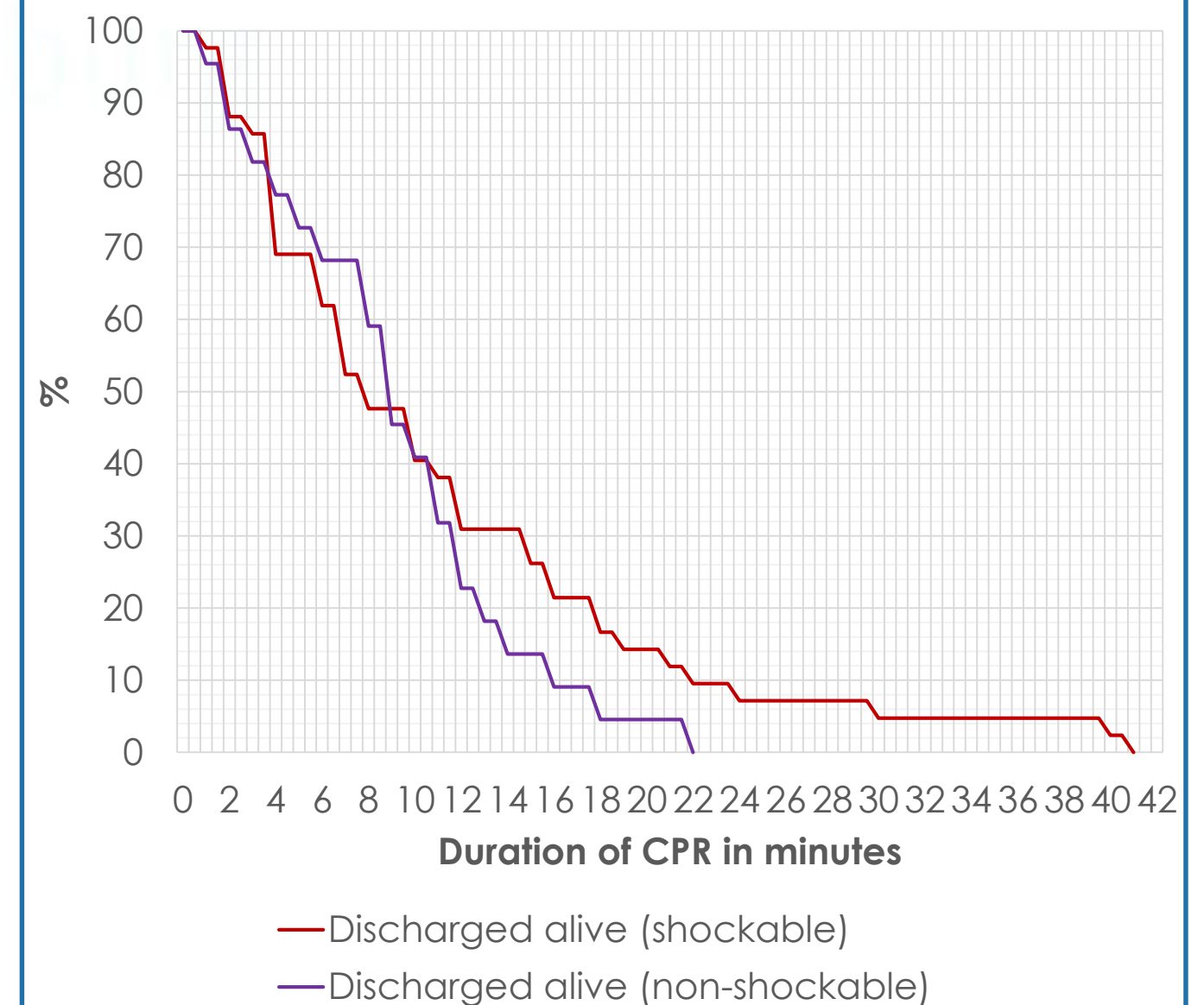
Review of the CPR-database of a county with 252,000 inhabitants from 2014-2016. Data included both medical records and data of the internal ECG-storage. The duration of CPR performed by EMS until time of first ROSC was determined and compared to hospital discharge and neurological favourable outcome (Cerebral Performance Category CPC 1/2. Analysis with U-test, results as median (25%/75%/99% percentiles).

Results:

In total n=647 CPR-attempts were recorded, complete data were available in n=422 cases (100%). Admission with ROSC: n=171 (40.5%). Discharged alive: n=66 (15.6%), discharged with CPC 1/2: n=48 (11.3%).

Group	n	CPR-duration until first ROSC Median (P25/P75/P99)	p-value
Admission with ROSC			
All rhythms	171	12:47 (07:28/18:50/44:47)min	
Shockable	71	10:20 (04:19/20:17/44:36)min	0.165
Non-shockable	100	13:21 (08:48/18:37/42:52)min	
Discharged alive			
Shockable	42	07:46 (03:45/15:01/40:09)min	0.841
Non-Shockable	22	08:53 (05:05/11:29/20:56)min	
Discharge status (all rhythms)			
CPC1/2	48	06:53 (03:02/11:22/32:47)min	<0.001
Death-in-Hospital	107	14:59 (09:36/21:44/49:19)min	

CPR-duration until first ROSC - CPR performed by EMS



Conclusion:

CPR in OHCA might be associated with survival and favourable outcome even when CPR was performed for more than 40 minutes by EMS. If the time from collapse to arrival of EMS is added, there really seems to be a "golden hour of resuscitation" with any chance of survival. Therefore we recommend not to stop CPR earlier.

References:

[1] L.L. Bossaert et al. / Resuscitation 95 (2015): 302-311

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