

Mean initial cerebral saturation (rSO₂) during advanced life support (ALS) in out-of-hospital cardiac arrest (OHCA) patients, predictor of survival?

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Introduction

Currently it is impossible to predict return of spontaneous circulation (ROSC) during CPR.

Cerebral near infra-red spectroscopy (NIRS), (cerebral saturation (rSO₂)) can be measured during cardiac arrest.¹

Purpose

We measured rSO₂ during CPR in OHCA patients and compared the difference between mean rSO₂ of the first minute of ALS in patients achieving ROSC compared to patients without ROSC.

Statistics

- Mann-Whitney test was used to compare survivor and non-survivor data.
- Non-parametric testing was used according to the underlying data distribution and expressed as median (25th - 75th percentile).
- Categorical features were given in terms of percentages.
- Mann-Whitney-U tests were performed to compare the initial cerebral saturation values.

Methods

- 52 OHCA patients
- 1 center, Ziekenhuis Oost-Limburg, Genk
- Inclusion criteria:
 - Out-of hospital cardiac arrest
 - No obvious traumatic cause of cardiac arrest
 - > 18 year
- Cerebral rSO₂ pre-hospital during ALS
- Measurement was discontinued if the patient died or at arrival at intensive care unit
- Return of spontaneous circulation (ROSC) is defined as ROSC during more than 20 minutes
- CPR data were collected using the Utstein CPR data registration and MUG form



Results

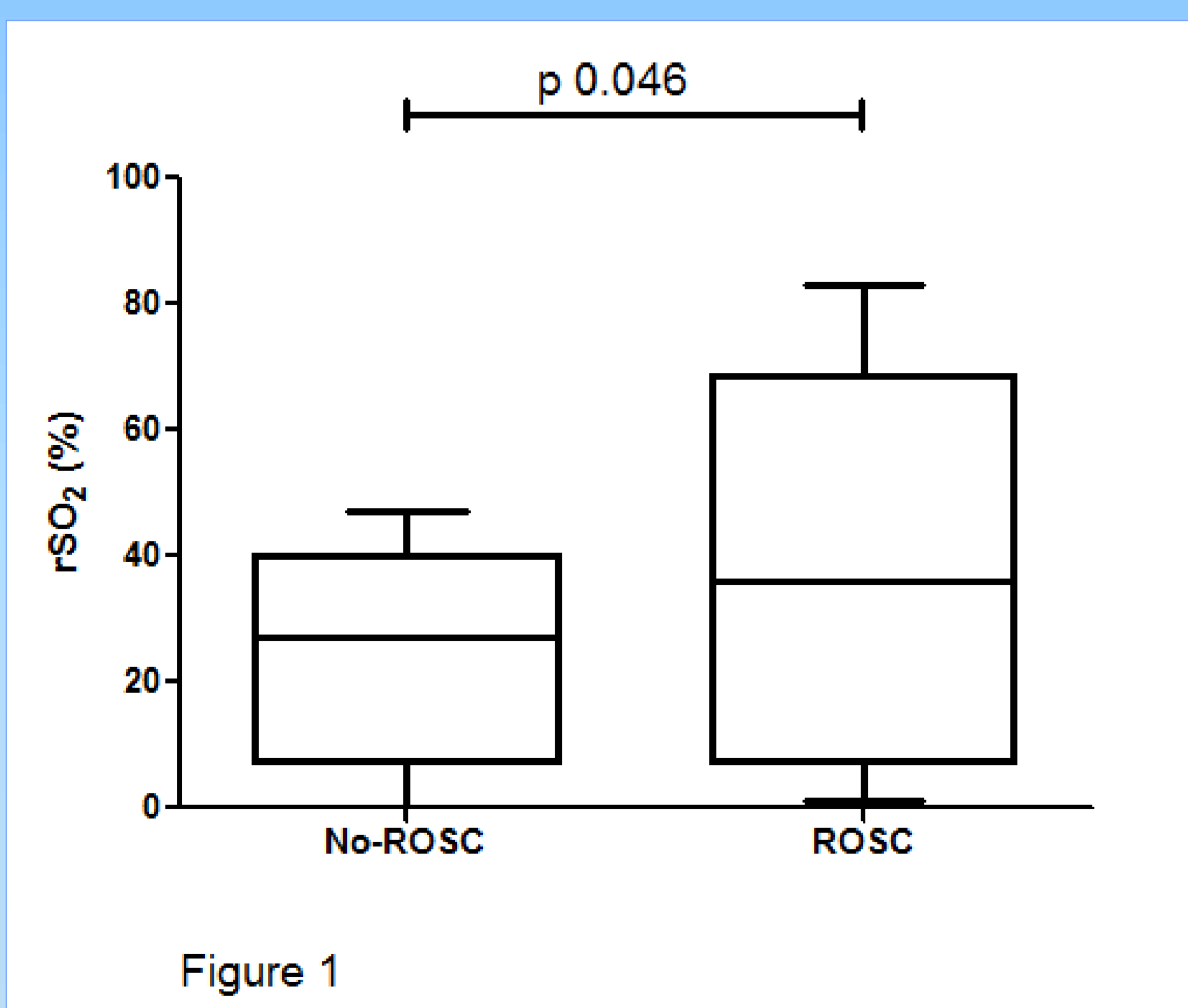


Figure 1

	No-ROSC	ROSC	P-value
Number	30	22	
Age	73 (61-79)	72 (55-83)	0.874
Male	23 (76.67%)	11 (50%)	0.046
Initial rhythm			
Asystole	20 (66.67%)	12 (54.55%)	0.375
VFib	6 (20%)	8 (36.36%)	0.189
PEA	4 (13.33%)	2 (9.09%)	0.636
Time call-ALS (min)	14 (12-17)	12 (8-15)	0.031
Time call-BLS (min)	0 (0-3.75) (2 missing)	0.5 (0-4) (4missing)	0.554
Time collapse-BLS (min)	3 (0-10)	2 (0-9)	0.984
Mean initial rSO₂ (%)	27 (14-33)	36 (13-54)	0.046
Witnessed arrest	15 (50%)	17 (77.27%)	0.046
Lay-rescuer BLS	20 (66.67%)	12 (54.55%)	0.375

Conclusion

A significant difference is observed in mean initial rSO₂ values of the first minute of ALS between patients with ROSC and no-ROSC during ALS in OHCA patients. Further research is necessary to confirm these observations.

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References

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