Best Abstracts

001 - FACTORS ASSOCIATED WITH SURVIVAL AFTER REARREST IN OHCA PATIENTS WITH FIELD ROSC: A PROSPECTIVE MULTIREGIONAL STUDY

J.H. Woo[1], J.S. Cho[1]
[1]*Gachon University Gil Medical Center, Department of Emergency and Critical Care Medicine, Incheon, Korea, Republic of*

INTRODUCTION. To our knowledge, there have been few studies of rearrest after field return of spontaneous circulation (ROSC) in out-of-hospital cardiac arrest (OHCA) patients. Most were retrospective studies that only used pre-hospital emergency medical service (EMS) records or electrocardiography records[1, 2].
OBJECTIVES. Investigate factors associated with the occurrence of rearrest after field ROSC and examine factors associated with survival despite the occurrence of rearrest.
METHODS. We conducted a prospective multiregional study for OHCA patients between August 2015 and July 2016. Patients were treated with prehospital advanced cardiovascular life support (ACLS) by emergency medical technicians who were directly controlled by medical directors (physicians) via real-time smartphone video calls [smartphone-based ACLS (SALS)]. Data were collected from prospective databases including prehospital EMS records, medical directors' records, and hospital medical records. Study populations were categorized as “rearrest (+) group” and “rearrest (-) group” contingent upon the occurrence of rearrest after field ROSC. Study populations with rearrest were also categorized as survivors or non-survivors based on their survival upon hospital discharge.
RESULTS. During the study period, 1,711 OHCA patients received SALS. Field ROSC occurred in 345 patients (20.2%). In the rearrest (+) group [182 patients (52.8%)], initial shockable rhythm was less frequent [68 (37.3%) vs. 89 (54.6%), $p = 0.001$], the interval from collapse to first ROSC was longer [31 (24-38) vs. 23 (16-30) min, $p < 0.001$], and the systolic blood pressure was lower [90 (80-117.5) vs. 110 (90-140) mmHg, $p = 0.005$] than in the rearrest (-) group. In survivors after rearrest, an initial shockable rhythm was more frequent than in non-survivors [28 (77.8%) vs. 40 (27.4%), $p < 0.001$]. Using multivariate analysis, a longer interval from collapse to first ROSC [odds ratio (OR) 1.053; 95% confidence interval (CI) 1.015-1.093; $p = 0.006$] and lower systolic blood pressure [OR 0.987; 95% CI 0.976-0.998; $p = 0.02$] were independently related to the occurrence of rearrest and an initial shockable rhythm [OR 4.512; 95% CI 1.171-17.391; $p = 0.03$] was independently related to survival after rearrest.
CONCLUSIONS. A longer interval from collapse to first field ROSC was associated with the occurrence of rearrest and the initial shockable rhythm was associated with survival despite the occurrence of rearrest.
REFERENCES.
1. Bhardwaj A, Ikeda DJ, Grossestreuer AV, et al. Factors associated with re-arrest following initial resuscitation from cardiac arrest. Resuscitation. 2017 Feb;111:90-95.
2. Salcido DD, Sundermann ML, Koller AC, Menegazzi JJ. Incidence and outcomes of rearrest following out-of-hospital cardiac arrest. Resuscitation. 2015 Jan;86:19-24.
Grant Acknowledgement: This study was conducted with the support of the Ministry of Health and Welfare of the Republic of Korea.

002 - RESTARTING THERAPEUTIC ANTICOAGULATION IN PATIENTS WITH INTRACEREBRAL HAEMORRHAGE AND MECHANICAL HEART VALVES

J.B. Kuramatsu[1], J.A. Sembill[1], I. Retrace Investigators[1], S. Schwab[1], H.B. Huttner[1]
[1]*University Hospital Erlangen, Neurology, Erlangen, Germany*

AIMS. Evidence is lacking regarding acute anticoagulation management in patients after intracerebral haemorrhage(ICH) with implanted mechanical heart valves(MHV). Our objective was to investigate anticoagulation reversal and resumption strategies by evaluating incidences of haemorrhagic- and thromboembolic complications, thereby defining an optimal time-window when to restart therapeutic anticoagulation(TA) in patients with MHV and ICH.
METHODS AND RESULTS. We pooled individual patient-data(n=2504) from a nationwide multicentre cohort-study (RETRACE, conducted at 22 German centres) and eventually identified MHV-patients patients (n=137) with anticoagulation-associated ICH for outcome analyses. The primary outcome consisted of major haemorrhagic-complications analysed during hospital stay according to treatment exposure (restarted TA *versus* no-TA). Secondary outcomes comprised thromboembolic-complications, the composite outcome (haemorrhagic- and thromboembolic-complications), timing of TA, and mortality. Adjusted analyses involved propensity-score matching and multivariable cox-regressions to identify optimal timing of TA. In 66/137(48%) of patients TA was restarted, being associated with increased haemorrhagic-(TA=17/66(26%) *versus* no-TA=4/71(6%); p< 0.01) and a trend to decreased thromboembolic-complications (TA=1/66(2%) *versus* no-TA=7/71(10%); p=0.06). Controlling treatment crossovers provided an incidence rate-ratio(10.31,[95%CI:3.67-35.70];p< 0.01) in disadvantage of TA for haemorrhagic-complications. Analyses of TA-timing displayed significant harm until day 13 after ICH (hazard-ratio: 7.06,[95%CI:2.33-21.37];p< 0.01). The hazard for the composite - balancing both complications - was increased for restarted TA until day 6 (hazard-ratio: 2.51,[95%CI:1.10-5.70];p=0.03).
CONCLUSION. Restarting TA within less than two weeks after ICH in patients with MHV was associated with increased haemorrhagic complications. Optimal weighing - between least risks for thromboembolic and haemorrhagic complications - provided an earliest starting point of TA at day 6, reserved only for patients at high thromboembolic risk.

061 - SURVIVAL OF PATIENTS REQUIRING INVASIVE MECHANICAL VENTILATION OUTSIDE THE INTENSIVE OR HIGH-CARE UNIT

W.T. Wong[1], L. Ling[1], A. Lee[1], G.M. Joynt[1], Y.F. Chan[2], H. Wu[3], W.M. Tang[4], L.H. Shek[5], S.O. So[6], M. Sinn[7], C.D. Gomersall[1]
[1]*The Chinese University of Hong Kong, Department of Anaesthesia and Intensive Care, Shatin, Hong Kong, China,* [2]*Tuen Mun Hospital, Intensive Care Unit, Tuen Mun, Hong Kong, China,* [3]*Queen Elizabeth Hospital, Intensive Care Unit, Kowloon, Hong Kong, China,* [4]*Princess Margaret Hospital, Intensive Care Unit, Kwai Chung, Hong Kong, China,* [5]*Caritas Medical Centre, Department of Medicine and Geriatrics, Sham Shui Po, Hong Kong, China,* [6]*Alice Ho Miu Ling Nethersole Hospital, Department of Medicine, Tai Po, Hong Kong, China,* [7]*Tseung Kwan O Hospital, Department of Medicine, Tseung Kwan O, Hong Kong, China*

INTRODUCTION. In resource limited regions, many critically ill patients receive invasive mechanical ventilation in a non-ICU/designated high-care environment. In Hong Kong there are different models-of-care provided for this group of patients in general wards: unstructured care in general wards, or a designated ward with either a designated ventilation team, or a supporting team from ICU.
OBJECTIVES. We conducted a prospective observational cohort study to evaluate outcomes, and whether different models-of-care are associated with mortality.
METHODS. Data from 7 hospitals, from January to April 2016, was recorded. Hospital mortality, and

time from study recruitment to death, or 90 days, was recorded. Standardized mortality ratio (SMR) using the Mortality Probability Model (MPM III) was calculated. Cox regression was used to estimate the hazard ratio (HR, with 95% CI) for comparing mortality between models-of-care, taking hospitals clustered within models-of-care into account. When proportional hazards assumptions were not met, we performed stratified cox regression. Overall discrimination of the final survival analysis model was estimated using Harrell's c-statistic.

RESULTS. We excluded 185 patients either undergoing limitation-of- life-support within 24 hours, or being cared in one hospital adopting a different model-of-care (only 15 eligible patients), the analysis was based on 285 patients, with 3 different models-of-care:

Model A: Designated ward/no designated ventilation team/supporting team from ICU (1 hospital)

Model B: Designated ward/designated ventilation team/no supporting team from ICU (2 hospitals)

Model C: No designated ward/no designated team/no supporting team from ICU (3 hospitals)

Of 285 patients, 173 died (61%, 95% CI: 55%-66%) in hospital, and 187 (66%, 95% CI: 60%-71%) had died within 90 days after intubation. Overall SMR was 1.82 (95% CI:1.56-2.11). SMR and survival probability estimates by model-of-care are summarized (Table). In the cox regression model, stratified by mechanical ventilation duration (< 48h vs ≥48h), and adjusted for MPM III score and causes for respiratory failure, there was a significant difference between models-of-care ($P < 0.001$) (Table). Discrimination was acceptable (c-statistic=0.71).

Model of care (n)	SMR (Hospital mortality/estimated mortality by MPM III)	Number (%) surviving 90 days	Adjusted Hazard ratio (95% CI)
Model A (101)	1.64 (95% CI: 1.22-2.16)	53 (52.5)	1.00
Model B (67)	1.72 (95% CI: 1.38-2.13)	12 (17.9)	1.67 (1.35-2.06)
Model C (117)	2.00 (95% CI: 1.59-2.46)	33 (28.2)	1.80 (1.57-2.06)

[SMR and survival probability by model of care]

CONCLUSIONS. Illness severity-adjusted mortality (SMR) of patients requiring invasive mechanical ventilation in wards is high. A designated ward, and a ventilation team or supporting team from ICU may improve survival.

GRANT ACKNOWLEDGEMENT. Young Investigator Research Grant 2015, Hong Kong College of Physicians.