Poster Corner 1 - Cardiovascular issues

001

TAKOTSUBO CARDIOMYOPATHY IN A PATIENT WITH ACUTE ISCHEMIC STROKE: A CASE PREPORT

H. Akram[1,2], C. Nily[1,2], S. Neelam[1,2], Y. Maged[1,2], A. Hazem[1,2], Y. Nader[1,2]
[1]Khoula Hospital, ICU, Department of Intensive Care Unit, Muscat, Oman, [2]Royal Hospital, ICU, Cardiology Department, Muscat, Oman

INTRODUCTION. Taktsubo cardiomyopathy (TC) also known as left ventricular(LV) apical ballooning syndrome commonly affects post-menopausal women who experience severe psychological or emotional stress. It has also been reported following cesarean delivery.[1,2.] Reverse TC is a variant of classical one, presents with normal contractility of the apical myocardium with impaired contractility of the basal and mid ventricular segments.[3]

CASE REPORT. A 45-year-old lady, having delivered a normal baby a day before, presented with GCS of 6/15. She was known diabetic and hypertensive on regular treatment. Her previous deliveries were uneventful. She was delivered under spinal anesthesia. Six hours later she had mild chest pain and shortness of breath, which gradually improved. When mobilized then she fall unconscious. she was intubated, for low GCS and ventilated. On examination: BP 85/90, T.36^{0}C, RR 24, SpO2 88%. ABG showed respiratory acidosis, pulmonary rales bilaterally. Blood chemistry, Troponin T. 0.364 ng/ml, CK 580U/l, RBS was 29 mmol/l, creatinine 161, no urine ketones. ECG: inferior wall MI. Chest X ray pulmonary edema. 2D thoracic Echo. LV dilation with regional wall motion anomalies; severe akinesia involving the mid and basal segments of all the walls with relative sparing of the apex. EF18%. Severe Tricuspid regurgitation with pulmonary artery systolic pressure of 40 mm Hg. Dobutamine and Noradrenaline started to stabilize blood pressure initially, ABG improved. Heparin and frusemide were started. A CT brain done showed diffuse white matter hypo densities bilaterally in the vertebral artery territory. 48 hours later, multiple episodes of bradycardia and desaturation. Repeat Echo. showed worsening of LV function with EF 10%. Repeated ECG: complete resolution of ST changes with Q waves in inferior leads. Coronary angio. : dilated LV with normal coronaries with no flow obstruction. Ballooning of the midventricular segment.Adrenaline added to increase pressure, and intra-aortic balloon pump initiated.cardiac enzymes was showing a decreasing trend and improved ventilatory parameters, but clinical deterioration and she died on 5th. day post admission.

DISCUSSION. The two most common causes of heart failure following delivery are dilated cardiomyopathy and TC. Emotional or psychological stress leading to catecholamine surge which traditionally considered in the pathogenesis of the cardiomyopathy.[4]TC has also been described as a complication of acute ischemic stroke in elderly women.[5] In this patient postpartum reverse TC occurred simultaneously with acute ischemic stroke. Whether TC followed postpartum stress or it occurred subsequent to acute ischemic stroke remained non-conclusive. Here the former possibility is more likely and ischemic stroke could have happened secondary to multiple preexisting comorbid conditions. In such a clinical background emboli could be one of the probable culprit causing stroke.

002

NEW ANTIPLAQUETARY AGENTS' EFFICACY AND SAFETY. “REAL LIFE” DATA FROM PATIENTS WITH ACUTE CORONARY SYNDROME. AN OBSERVATIONAL STUDY FROM ARIAM-ANDALUCíA REGISTRY

M. Almendro[1], T. Seoane[1], A. Guijarro[2], A.M. Poullet[3], A. Reina[4], A. García-Guerrero[1], M. Butrón-Calderón[1], P. Villar-Calle[1], J.A. Arboleda[3], R. de la Chica[4], Á. García[2], J.C. García-Rubira[1], R. Hidalgo-Urbano[1]

[1]Hospital Universitario Virgen Macarena, Cardiology, Seville, Spain, [2]Complejo Hospitalario Virgen de la Victoria, Málaga, Spain, [3]Hospital Regional Universitario de Málaga, Málaga, Spain, [4]Complejo Hospitalario Virgen de las Nieves, Granada, Spain

INTRODUCTION. The introduction of new antiplaquetary agents (NAA), ticagrelor and prasugrel, is being erratic. One of the reasons may be the higher risk of bleeding, compared with clopidogrel. This scenario leads to a privation of the potential benefit of these agents as showed in their pivotal studies.
OBJECTIVES. We aim to compare ischemic and bleeding outcomes in patients treated with NAA versus clopidogrel suffering from an acute coronary syndrome (ACS) admitted in a cardiac intensive care unit (CICU).
METHODS. This is a retrospective multicentre observational study from ARIAM-Andalusia registry. Mayor adverse cardiovascular events (MACE, composite of death, non fatal myocardial infarction, urgent revascularization and stroke) and bleeding data were collected prospectively between 2013 and 2015. Inhospital rate of MACE and bleeding events with NAA vs clopidogrel were analysed using multivariate propensity score matching models.
RESULTS. From January 2013 to December 2015, 2906 patients were included. 55% (1598) were treated with clopidogrel, 45%(1308) with NAA. 60% were ACS with ST elevation. ACS total mortality, ischemic stroke and stent thrombosis were lower with NAA (2% vs.9%, $p < 0.0001$, 0.1 vs. 0.5%; $p = 0.025$, 0.07 vs. 0.5%; $p = 0.025$, respectively). There were no differences in the rate of total bleeding (3 vs. 4%; p = NS). After propensity score matching, mortality reduction with NAA persisted (adj OR 0.37,95% CI [0.13 to 0.60]; $p < 0.0001$) with no increase in total bleeding (adj OR 1.07, 95% CI [0.18 to 2.37]; $p = 0.094$).
CONCLUSIONS. In the “real world”, NAA were associated with a reduction in major cardiac events including mortality, with similar bleeding rate compared to clopidogrel. We believe that these results may help the clinician in order to select the proper antiplatelet agent to provide the best clinical benefit to their patients.

003

ACCURACY OF THE FIRST INTERPRETATION OF EARLY CT IMAGES FOR PREDICTING THE PROGNOSIS IN CASES OF POST-CARDIAC ARREST SYNDROME

M. Nishikimi[1], T. Ogura[2], K. Liu[2], M. Nakamura[2], N. Matsuda[1]
[1]Nagoya University Graduate School of Medicine, Department of Emergency and Critical Care, Nagoya, Japan, [2]Japan Red Cross Maebashi Hospital, Advanced Medical Emergency Department and Critical Care Center, Maebashi, Japan

INTRODUCTION. Early brain CT is one of the most useful tools for estimating the prognosis in cases of post-cardiac arrest syndrome (PCAS) before the initiation of targeted temperature management (TTM). However, few studies have investigated the accuracy of interpretation of these early CT images, especially the accuracy of their interpretation by emergency physicians who are usually the first to see these images in actual clinical practice.
OBJECTIVES. The aim of this study was to compare the accuracy of prediction of the prognosis of PCAS patients treated by TTM from early brain CT scans by emergency physicians and radiologists.
METHODS. This was a double-center, retrospective, observational study. Eligible subjects were cardiac arrest patients who were admitted to the ICUs for undergoing TTM between 4/1/2011 and 3/31/2016. Subjects were included in the study if they had undergone a brain CT at the Emergency Department (ED) within 6 h after their cardiac arrest and their CT images had been interpreted both by the emergency physicians at the time of their admission and by radiologists within a few days of their admission. We used the exact MacNemar's test to compare the predictive accuracies of the interpretation by the emergency physicians and radiologists. The neurological outcome was evaluated by the CPC score at 30 days: favorable outcome (CPC score 1 or 2), unfavorable outcome (CPC score 3-5).
RESULTS. Of the 118 eligible patients, 81 met the inclusion criteria. The median age of the patients was 62.0 (52.0-70.0) years, and the median length of stay in the hospital was 27.5 (18.0-56.5) days. The rhythm at cardiac arrest was shockable in 63% of the cases, and the outcome was favorable in 43%. TTM was performed in the ICU using a surface cooling device with computerized automatic temperature control for all subjects. The predictive accuracies (sensitivity, specificity) of the emergency physicians' and the radiologists' interpretation of the initial brain CT images were (0.41, 1.00) and (0.50, 0.91), respectively. The areas under the curve (AUCs) were 0.707 and 0.712 respectively. Analysis by the exact MacNemar test revealed no difference in either the sensitivity or the specificity between the two interpretations (Table). The weighted kappa statistic between these two interpretations was 0.63. Also, there was little difference in the predictive accuracy of the interpretations between the two hospitals.

	Interpretation by emergency physicians	Interpretation by radiologists	Odds Ratio [95%CI]	p - value
Sensitivity	0.413	0.500	0.50 [0.11-1.87]	0.387
Specificity	1.000	0.914	0.00 [0.00-2.42]	0.250

[Comparison between two Interpretations]

CONCLUSIONS. The predictive accuracy of emergency physicians' interpretation of poor prognostic signs on early brain CT scans in cases of PCAS was as high as that of the radiologists'. These results suggest that TTM may fail to improve the outcome in PCAS patients in whom emergency physicians detect signs of hypoxic encephalopathy on early brain CT scans obtained prior to the initiation of TTM.

004

IS SOCIAL NETWORK VIDEO CALLING CHAT-USED TELEMENTORING ECHOCARDIOGRAPHY FOR EVALUATING CARDIAC FUNCTION FEASIBLE?

C. Kim[1], J. Oh[1], Y. Song[1]
[1]Hanyang University, College of Medicine, Emergency Department, Seoul, Korea, Republic of

INTRODUCTION. Echocardiography is essential to evaluate cardiac function for determining patients' hemodynamic status. Considering the rapidly changing status of patients, immediately available echocardiography is required in the emergency critical care setting. However, an onsite expert sonographer is not always available. Based on previous research showing that ultrasound images transmitted via freely available video calls were non-inferior to those on the ultrasound machine [1], we speculated whether a freely available video call could be applied to telesonogarphy. In this study, we simulated that the patient's condition take a sudden turn for the worse, so the point of care bedside echocardiography for evaluating cardiac function is required but there is only complete novice at bedside.

OBJECTIVES. We aimed to investigate whether an offsite expert could effectively evaluate visually estimated ejection fraction (EF) while watching and guiding the echocardiographic procedure of an onsite novice practitioner using a freely available social network video chat.

METHODS. Sixty patients presenting to the intensive care unit and requiring echocardiography between October and November 2016 were included. Sixty novice sonographers without any previous experience of echocardiography participated. Prior to the procedure, the onsite cardiologist completed the echocardiography and determined the EF using the modified Simpson's method (Reference value). Then, the novice practitioner performed the echocardiography again with the offsite expert's guidance via a social network video chat. The EF was visually estimated by the offsite expert while watching the ultrasound video on the smartphone display. Spearman's rank correlation and Bland-Altman plot analysis were conducted to show the agreement of the two methods. We further evaluated the accuracy (sensitivity, specificity, positive predictive value, and negative predictive value) for detecting a low EF **when the threshold of a normal value of EF was set at 55% (< 55%: low EF,** ≥55%: normal EF).

RESULTS. There was excellent agreement between the two methods, with a correlation coefficient of 0.94 ($p < 0.001$). The **Bland-Altman plot showed that the average bias was -3.05, and the limit of agreement (-10.3 to 4.2) was narrow. When the threshold of the normal value of EF was set at 55% (< 55%: low EF,** ≥55%: normal EF), the remote eyeballing EF had a sensitivity of 94.1% and a specificity of 84.6% for detecting a low EF (positive predictive value: 88.9%, negative predictive value: 91.7%).

CONCLUSION. The offsite expert could remotely evaluate the visual estimation of ejection fraction via a social network video chat by mentoring the onsite novice sonographer.

REFERENCES.

1. Levine AR, Buchner JA, Verceles AC, Zubrow MT, Mallemat HA, Papali A, McCurdy MT. Ultrasound images transmitted via FaceTime are non-inferior to images on the ultrasound machine. J Crit Care. 2016 Jun;33:51-5.

005

ACCURACY OF EVOKED POTENTIAL AS A PREDICTOR OF FAVORABLE OUTCOME IN PATIENTS AT 24 HOURS AFTER CARDIAC ARREST AND RETURN OF SPONTANEOUS CIRCULATION

T. Moriya[1], T. Ebihara[1], A. Shimoyama[1], T. Chijiwa[1]
[1]Saitama Medical Center, Jichi Medical University, Department of Acute Medicine and Critical Care Medicine, Saitama, Japan

BACKGROUND AND OBJECTIVES. In our previous electrophysiological evaluations of patients immediately after ROSC, we found that, although the presence of Somatosensory evoked potential (SSEP) N20 components immediately before therapeutic hypothermia is a useful predictor of outcome, one third of patients with the presence of SSEP N20 remained in a coma. In this study, we additionally evaluated SSEP at 24 hours after ROSC, during induced hypothermia.
MATERIALS AND METHODS. The study subjects were 26 comatose patients (17 males and 9 females; age 29 to 78 years old; average age 58.2) who manifested auditory brainstem response wave V and SSEP N20 after ROSC and were admitted to Nihon University Itabashi Hospital Emergency and Critical Center. At 24 hours after ROSC, an SSEP examination was performed using bilateral stimulation applied to the median nerve at the level of the wrist with six electrodes (bilateral Erb C5, C3, C4, Fz by the International 10-20 System). Two sets of 1,000 stimuli were recorded. Favorable outcome (category 1 and category 2) was defined using the Pittsburgh cerebral-performance Category on a five-point scale and evaluated at discharge.
RESULTS. Of 26 patients, fifteen (58%) in whom SSEP N20 was present had a favorable outcome and all 11 patients in whom SSEP N20 was absent had an unfavorable outcome. All patients in whom SSEP N20 was present at 24 hours had a favorable outcome; on the other hand, those in whom it was absent had an unfavorable outcome.
CONCLUSIONS. The measurement of SSEP N20 at 24 hours after ROSC may be very useful for identifying patients in whom a favorable outcome can be expected after therapeutic hypothermia.

006

CONTEMPORARY USE OF NEW ANTIPLAQUETARY AGENTS IN PATIENTS WITH ACUTE CORONARY SYNDROME. AN OBSERVATIONAL STUDY FROM ARIAM-ANDALUSIA REGISTRY

T. Seoane[1], M. Almendro[1], R. de la Chica[2], Á. García[3], J.A. Arboleda[4], M. Butrón-Calderón[1], A. García-Guerrero[1], P. Villar-Calle[1], A. Reina[2], A. Guijarro[3], A.M. Poullet[4], J.C. García-Rubira[1], R. Hidalgo-Urbano[1], ARIAM-Andalusia

[1]Hospital Universitario Virgen Macarena, Cardiology, Seville, Spain, [2]Complejo Hospitalario Virgen de las Nieves, Granada, Spain, [3]Complejo Hospitalario Virgen de la Victoria, Málaga, Spain, [4]Hospital Regional Universitario de Málaga, Málaga, Spain

INTRODUCTION. Clopidogrel was the first P2Y12 inhibitor used to tread acute coronary syndrome (ACS). With the introduction of prasugrel and ticagrelor, new regimens were available, but “real world” data of their use remains unknown.

OBJECTIVES. To analyse the contemporary use of antiplatelet agents in an actual cohort of patients admitted in a cardiac intensive care unit (CICU) due to ACS.

METHODS. Retrospective multicentre observational study comparing the use of the clopidogrel with the new antiplatelet agents (NAA).

RESULTS. From January 2013 to December 2015, 2906 patients were included. 55% (1598) were treated with clopidogrel, 45%(1308) with NAA. 60% had STEMI. Clopidogrel treated patients presented with higher GRACE (144 vs 139;p< 0.0005)and CRUSADE (27 vs 20;p< 0.0001) scores, were older (66±13 vs 60±12;p< 0.0001) and more likely to have atrial fibrillation (8% vs 2.5% p< 0.0001). Clopidogrel group was less likely to underwent PCI (89% vs 95%;p< 0.0001).

There was no difference between prevalence of diabetes (29% vs 33%;p=0.056), previous ACS (16% vs 17%;p=0.112) or cardiogenic shock (2% vs 1.6% p=0.396).

The use of NAA was increased yearly: 2013:31%NAA, 2014:54%NAA and 2015:63%NAA(p< 0.001).

CONCLUSIONS. Real world data showed that NAA are being gradually and selectively incorporated among younger patients with less comorbidities and higher risk scores.

007

VA-ECMO FOR PATIENTS WITH REFRACTORY CARDIOGENIC OR SEPTIC SHOCK - A FIVE YEAR RETROSPECTIVE ANALYSIS FICHTE JKM, FRIEDRICHSON B, BANJAS N, HOPF HB DEP. ANESTHESIA AND PERIOP. MEDICINE, ASKLEPIOS KLINIK LANGEN, GERMANY

J.K.M. Fichte[1], B. Friedrichson[1], N. Banjas[1], H.-B. Hopf[1]
[1]Asklepios Klinik Langen, Anesthesiology and Preoperative Medicine, Langen, Germany

INTRODUCTION. Venous-arterial extracorporeal membrane oxygenation (VA-ECMO) as a treatment option for patients with refractory cardiogenic or septic shock now has a 2b recommendation in the current ECRS guidelines. However, whether or not VA-ECMO improves prognosis in patients with cardiogenic or septic shock is unknown.
PATIENTS AND METHODS. Accordingly, we retrospectively evaluated mortality of our patients presented at our hospital with cardiogenic or septic shock treated with VA-ECMO (2011-2016, n=138). At ICU admission following variables were evaluated: patients age, duration of ECMO therapy, duration of ventilation, lactat value, SAPS II (Simplified acute physiology score) and SOFA Score (Sepsis-related organ failure assessment score). Primary outcome variable: 30-day mortality.
STATISTICS. Coincidence between inital physiological scores and hospital mortality
Table 1: Physiological variables at ICU admission (means±sd)
RESULTS. 30 day mortality was 49% (n=60) in the cardiogenic and 41% (n=17) in the septic shock group. SAPS II, SOFA and blood lactate content were significantly associated with a unfovarable outcome.
CONCLUSION. Compared to actual data mortality in our patients treated with VA-ECMO tends to be lower. VA-ECMO might be an therapeutic option in patients presenting with refractory cardiogenic or septic shock.

	sepsis	septic shock (n=47)		cardiogenic shock (n=58)
variables				
SAPS II (n=47)	47,0±	22,3	65,3±	9,6
SOFA (n=47)	9,6±	3,4	22,8±	3,1
duration VA (h, n=47)	60±	13,5	65±	12
age (years, n=47)	64±	12,9	65±	7,7
duration ventilation (h, n=47)	688±	727	233±	384
lactat (mmol/l, n=47)	40,4±	33,5	71,6±	48

[Table 1: Physiological variables at ICU admission]

REFERENCES.

Maekava E et al. Extracorporeal rescucitation for patients with out of hospital cardiac arrest of cardiac origin: a Propensity matched study and a predictor analysis, Crit Care Med. 2013 41:1186-96;
Ouweneel DM et al., extracorporeal life support during cardiac arrest and cardiogenic shock: a systematic review and meta-analysis. Intensive Care Med. 2016;42:1922-1934.

008

WHAT IS THE IMPORTANCE OF PREOPERATIVE ELECTROCARDIOGRAM IN HYPERTENSIVE PATIENTS FOR MODERATE/HIGH RISK NONCARDIAC SURGERY? A SINGLE-CENTER RANDOMIZED STUDY

L. Ramos[1], B. Cristina[2], M. Ferreira[3], C. Souza[1], M. Calil[1], J.C. Góes[1]
[1]Brazilian Institute for Cancer Control, São Paulo, Brazil, [2]Pontifícia Universidade Católica, São Paulo, Brazil, [3]FAMEMA Medical School, Marilia, Brazil

INTRODUCTION. Some guidelines recommend that a preoperative electrocardiogram (EKG) should be obtained before a noncardiac surgery in hypertensive patients. However, the available data on its utility are based on less than robust levels of evidence.
OBJECTIVE. The aim of this study was to determine the role of EKG in hypertensive patients before a noncardiac surgery using by the first time a randomized design.
METHODS. A total of 997 asymptomatic hypertensive patients with normal physical examination findings and without other known comorbidities were randomized into 2 groups at the time of preoperative clinical evaluation. Of these, 9 did not undergo surgery, and were excluded from the study. All patients required surgical procedures under general anesthesia to treat neoplastic disease. Group A (with EKG), had 495 patients (mean age, 47.0 ± 12.6 years), and group B, who did not undergo EKG, had 493 patients (mean age, 46.3 ± 10.5 years). Patient sex, age, level and duration of hypertension, surgical risk, previous chemotherapy or radiotherapy, chest X-ray results, blood tests results, duration of surgery, and in-hospital outcomes were analyzed. Adverse outcome was considered any major adverse cardiac event (MACE) or death from all causes.
RESULTS. Among the 495 EKG analyzed, 426 (86%) were normal. Patients from group A had more abnormal blood tests (12.2% vs 1.8%; p< 0.001) and underwent longer surgical procedure (3.8±1.6 hours vs 3.0±1.6hours; p< 0.001). A total of 21 patients from group A (4.3%) which underwent ECG, had some adverse outcome including 5 death, compared with 8 (1.6%) patients from group B including 3 death (p=0.014). After multivariate logistic regression analysis, perform EKG was not statistically significant (OR=1.60 CI 95% 0.68-3.8; p=0.282). Blood tests abnormalities (OR 3.55 CI95% 1.33-9.51; *p*=0.012) and a longer duration of surgery (OR 1.44 CI95% 1.18-1.76; p< 0.001) had an influence on in-hospital outcomes.
CONCLUSION. Obtaining a preoperative EKG in asymptomatic hypertensive patients with normal physical examination findings without other comorbidities does not have a significant impact on postoperative outcomes, suggesting that this test may not be useful for this patient cohort.

009

ACCURACY OF POINT-OF-CARE FOCUSED ECHOCARDIOGRAPHY IN PREDICTING OUTCOME OF RESUSCITATION IN CARDIAC ARREST PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

C.-Y. Chi[1], P.-Y. Tsou[2], J. Kurbedin[3], M.-T.G. Lee[1], M. Lee[4], M.H.-M. Ma[1], S.-C. Chen[1], C.-C. Lee[5]
[1]National Taiwan University Hospital, Department of Emergency Medicine, Taipei, Taiwan, Province of China, [2]Johns Hopkins Bloomberg School of Public Health, Department of Epidemiology, Baltimore, United States, [3]Maimonides Medical Center, Department of Emergency Medicine, Brooklyn, United States, [4]Medical Wisdom Consultants Inc, Houston, United States, [5]National Taiwan University Hospital, Emergency Medicine, Taipei, Taiwan, Province of China

OBJECTIVE. We aim to summarize current evidence on the value of Point-of-Care (POC) focused echocardiography in the assessment of short-term survival and reversible causes in patients with cardiac arrest.
METHODS. PubMed and EMBASE were searched from inception to July 2016 for eligible studies that evaluated the utility of POC echocardiography in patients with cardiac arrest. Modified QUADAS was used to appraise the quality of included studies. A random-effect bivariate model and a hierarchical summary receiving operating curve were used to summarize the performance characteristics of focused echocardiography.
RESULTS. Initial search identified 961 citations of which 15 were included in our final analysis. A total of 1695 patients had POC echocardiography performed during resuscitation. Ultrasonography was mainly utilized to detect spontaneous cardiac movement (SCM) and identify reversible causes of cardiac arrest. Subcostal, apical and parasternal views were used to identify cardiac tamponade, pulmonary embolism, and pleural view for tension pneumothorax. Results of meta-analysis showed that SCM detected by focused echocardiography had a pooled sensitivity (0.95, 95%CI: 0.72-0.99) and specificity (0.80, 95%CI: 0.63-0.91) in predicting return of spontaneous circulation (ROSC) during cardiac arrest, with a positive likelihood ratio of 4.8 (95% CI: 2.5-9.4) and a negative likelihood ratio of 0.06 (95%CI: 0.01-0.39).
CONCLUSION. POC focused echocardiography can be used to identify reversible causes and predict short-term outcome in patients with cardiac arrest. In patients with a low pretest probability for ROSC, absence of SCM on echocardiography can predict a low likelihood of survival and inform and the decision of resuscitation termination.

010

RESULTS OF THE FIRST DECADE OF EXPERIENCE OF THE CARDIOPULMONARY RESUSCITATION PROGRAM "JUAN RAMóN JIMéNEZ" HOSPITAL (SPAIN)

C. Jiménez Conde[1], M. Morales Navarrete[1], M. Márquez Fernández[1], A. Tristancho Garzón[1], E. Márquez Flores[1], M. Herrera Carranza[1]
[1]Hospital Juan Ramón Jimenez, UCI, Huelva, Spain

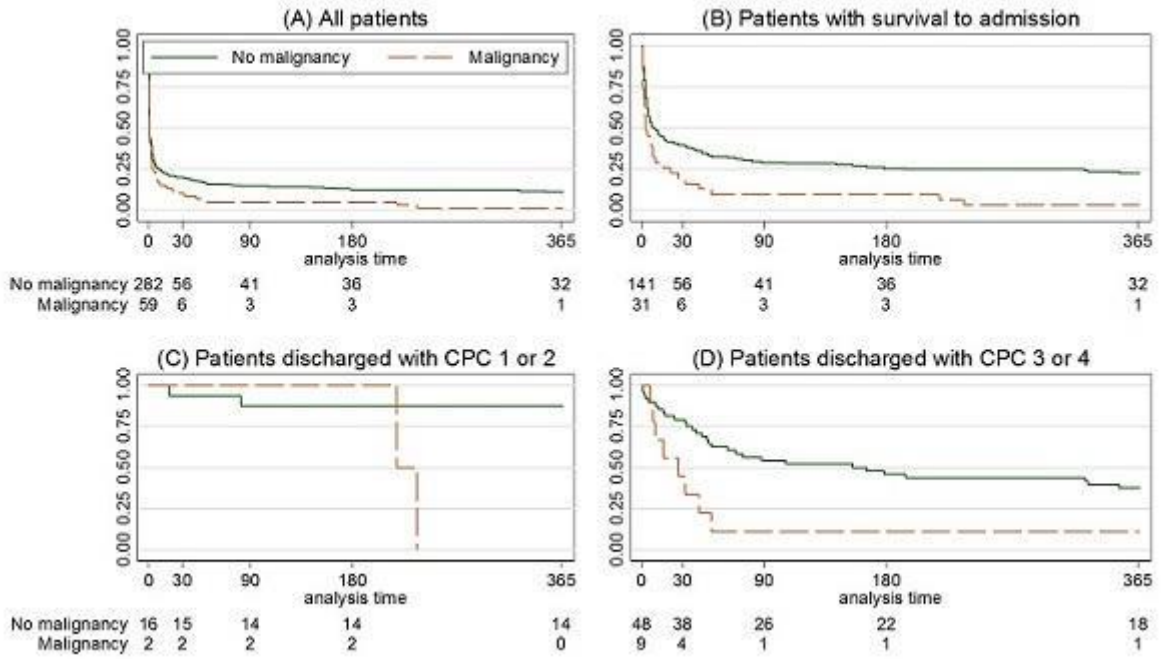
INTRODUCTION. Deaths due to in hospital cardiac arrest is a big problem with high societal, economic and health impact. Although Little hard data are available in our country, it is estimated 370000-750000 in hospital cardiac arrest in USA and 700000 in Europe. Survival from in hospital cardiac arrest is poor, but we could reduce mortality and morbidity if we improved the first response of assistance. For that purpose, the four steps in the cardiac chain of survival are proposed.
OBJECTIVE. To present the results of the first decade of the functioning of a Cardiopulmonary Resuscitation (CPR) Hospital Plan and to describe the characteristics of the patients with cardiopulmonary arrest (CPA) in hospital units with no monitoring facilities (HU).
METHODS. An observational, prospective study in a cohort of patients who presented CPA during a decade period.
SETTING. HU of a general hospital and as province reference. Patients admitted to an HU from May 2007 to December 2016 with CPA and treated according to a specific hospital CPA Program, organized in order to:
(a) decentralize the CPR through the training of the nurse as the first responder capable of performing immediate CPR and early defibrillation (DF) (less than 4 min),
(b) a specific phone number as hospital alarm of CPR and
(c) maintenance of the CPR maneuvers by an early intervention Resuscitation Team (RT) (less than 8 min).
RESULTS. A total of 407 patients were included with activation of the CPA alarm, 60 of which were false alarms, with an average age of 70 years and 62% men. A total of 70% occurred in the medical area in patients with heart or respiratory failure. Initial heart rhythm of the patients attended was asystolic or electromechanical dissociation in 78% of the patients and shockable rhythm in 21%. The first attending person was the nurse in 77% of cases, CPR was always initiated in less than 1 min and RT in less than 8 min (95%). 59% survived and 31% of the reanimated patients were discharged live from the hospital.
CONCLUSIONS. The CPR "Juan Ramón Jiménez" Hospital Program is an applicable and effective initiative in our setting.
REFERENCE. Herrera M et al. Resultados del primer año de funcionamiento del plan de resucitación cardiopulmonar del Hospital Juan Ramón Jiménez (Huelva). Medicina Intensiva. 2010;34(3):170-181.
GRANT. No grant financing.
ACKNOWLEDGMENT. My mentor Manuel Herrera Carranza.

011

LONG-TERM SURVIVAL OF OUT-OF-HOSPITAL CARDIAC ARREST PATIENTS WITH MALIGNANCY

K.S. Kim[1], S.B. Kang[1], G.J. Suh[1], J.-I. Ko[1], T. Kim[1]
[1]Seoul National University Hospital, Seoul, Korea, Republic of

OBJECTIVES. The aim of this study is to investigate whether the 1-year survival rate of out-of-hospital cardiac arrest (OHCA) patients with malignancy is different from that of those without malignancy.
METHODS. All adult OHCA patients were retrospectively analyzed in a single institution for 6 years. Primary outcome was 1-year survival and secondary outcome was sustained return of spontaneous circulation (ROSC), survival to hospital admission, survival to discharge and discharge with a good neurologic outcome (cerebral performance scale [CPC] 1 or 2). Kaplan-Meier survival analysis and Cox proportional hazard regression analysis were performed to test the effect of malignancy.
RESULTS. Among 341 OHCA patients, 59 cases had malignancy (17.3%). Sustained ROSC, survival to admission, survival to discharge and discharge with a good CPC were not different between two groups. The 1-year survival rate was lower in patients with malignancy (1.7% vs. 11.4%; *P* = 0.026). Kaplan-Meier survival analysis revealed that patients with malignancy had a significantly lower 1-year survival rate when including all patients (n = 341; *P* = 0.028), patients with survival to admission (n = 172, *P* = 0.002), patients with discharge CPC 1 or 2 (n = 18, *p* = 0.010) and patients with discharge CPC 3 or 4 (n = 57, *p* = 0.008). Malignancy was an independent risk factor for 1-year mortality in Cox proportional hazard regression analysis performed in patients with survival to admission and survival to discharge.



[Kaplan-Meier survival curves comparing patients with or without malignancy.]

CONCLUSIONS. The 1-year survival rate was significantly lower in OHCA patients with malignancy than in those without malignancy.

012

CARDIOPULMONARY RESUSCITATION-RELATED FATAL INTERNAL MAMMARY ARTERY INJURY AFTER PROVIDING VENO-ARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION: 5 CASE REPORTS

T. Yamagishi[1], M. Kashiura[1], K. Nakata[1], K. Miyazaki[1], T. Yukawa[1], T. Tanabe[1], K. Sugiyama[1], A. Akashi[1], Y. Hamabe[1], K. Nakamura[1], T. Ishida[1]
[1]Tokyo Metropolitan Bokutoh Hospital, Tertiary Emergency Medical Center, Tokyo, Japan

BACKGROUND. The importance of chest compressions as part of cardiopulmonary resuscitation (CPR) was emphasized in the 2010 guidelines. CPR can lead to bleeding complications, which may become life-threatening, especially in patients on veno-arterial extracorporeal membrane oxygenation (VA-ECMO), because of concomitant anticoagulant, antiplatelet treatment, therapeutic hypothermia, and bleeding coagulopathy. We report 5 cases of CPR-related fatal internal mammary artery (IMA) injury in patients who underwent VA-ECMO.
CASE. We extracted the medical records for cardiopulmonary arrest (CPA) patients who were administered VA-ECMO and experienced CPR-related IMA injury between February 2011 and February 2016 at our institution. Five male patients with ages between 56 and 68 years were identified. Intravenous heparin was administered concomitantly with VA-ECMO and antiplatelet therapy was introduced for suspected coronary artery disease in all patients. After providing VA-ECMO, hematomas at the mediastinum, chest wall, or chest cavity were detected via enhanced computed tomography (CT) in all cases. Three of the 5 IMA injury patients were treated with transarterial embolization (TAE) within 6 hours of CPA and 2 patients survived. One patient died because of hemorrhagic shock, although the patient received early intervention treatment. The remaining 2 of 5 patients died because of hemorrhagic shock; 1 patient received a thoracotomy followed by TAE and the other received TAE more than 9 hours after CPA. All 3 patients who died were deceased within 24-h of the treatment intervention. For 1 patient, TAE was delayed because the first enhanced CT did not show extravasation of contrast.
CONCLUSION. Although the CPR guidelines published in 2015 altered the recommendations regarding chest compressions, they do not ensure complete cessation of CPR-related chest injuries. Fatal bleeding may occur in CPA patients who undergo VA-ECMO with concomitant anticoagulant and antiplatelet treatment, therapeutic hypothermia, and/or bleeding coagulopathy. Therefore, early enhanced CT should be performed to confirm CPR-related hemorrhaging and its etiology and subsequent early TAE or thoracotomy should be performed, if necessary. Delayed bleeding associated with arterial spasm and hypotension may present as hemostasis temporarily, therefore careful observation with repeat CT, urgent interventional radiology, correcting the coagulopathy, and/or cessation of systemic heparinization for VA-ECMO should be considered.

013

THE IMPACT OF NEW-ONSET ATRIAL FIBRILLATION PERSISTENCE ON MORTALITY AND THE STROKE INCIDENCE IN CRITICALLY ILL PATIENTS

T. Yoshida[1], S. Uchino[1]
[1]The Jikei University School of Medicine, Intensive Care Unit, Department of Anesthesiology, Tokyo, Japan

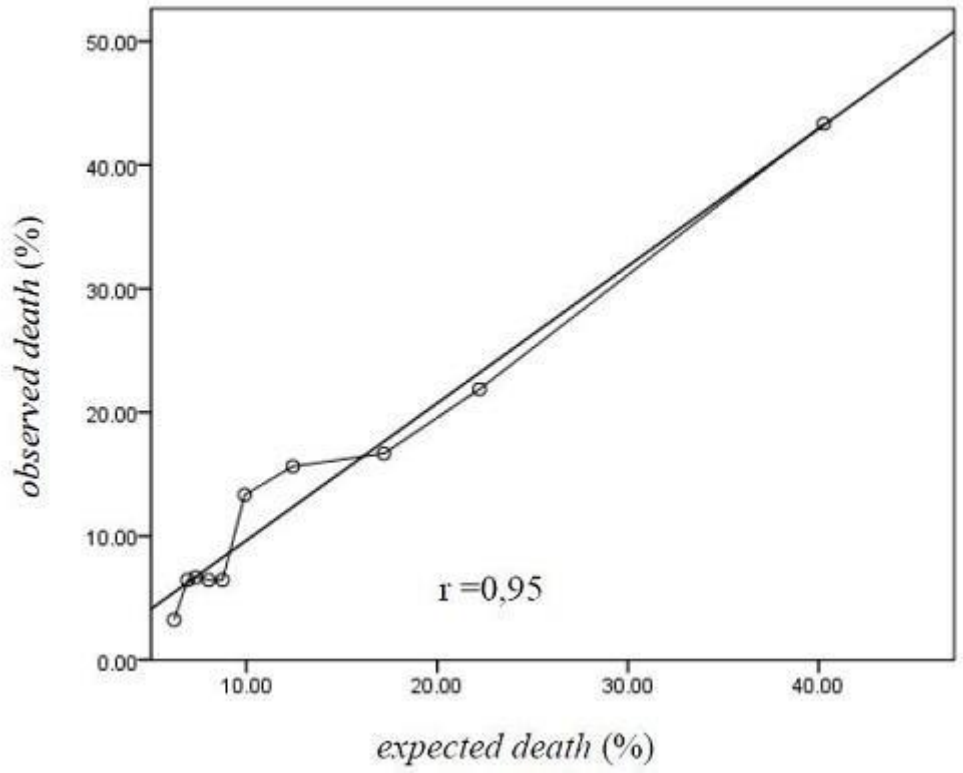
INTRODUCTION. When new-onset atrial fibrillation (AF) occurs in critically ill patients, it remains controversial whether the rhythm control is the best initial strategy.
OBJECTIVES. To evaluate the impact of the persistence of new-onset AF on mortality and the stroke incidence in critically ill patients.
METHODS. This is a retrospective observational study in a general intensive care unit (ICU). Adult patients who developed new-onset AF during their ICU stay were included. We collected rhythm information at 6, 12, 24 and 48 hours after the AF onset. We compared detailed patient characteristics in sinus rhythm (SR) and AF patients at 6 hours after the AF onset and conducted multivariable logistic regression analysis for hospital mortality. In addition, when we identified the cardiac rhythm as AF at each point, we regarded it as persistence AF from the previous point and examined the impact of the total duration of AF on in-hospital death and ischemic stroke.
RESULTS. Among 1718 patients admitted to the ICU, new-onset AF occurred in 151 patients (9%), and 99 patients converted to SR at 6 hours (66%). The cohort had a median (interquartile range) Acute Physiology and Chronic Health Evaluation II score of 21 (15 - 26). The postoperative state accounted for 66% of all study patients. Although there was no difference in patient characteristics between AF and SR at 6 hours, patients with AF had higher mortality than patients with SR (37% vs. 20%, p = 0.04). AF at 6 hours was also independently associated with hospital mortality (odds ratio, 3.640; 95% CI, 1.677 - 9.228; 0.006) in multivariable logistic regression analysis. The in-hospital stroke incidence in patients with AF was also higher than SR at 6 hours (5% vs. 12%, p = 0.177). Patients with the prolonged duration of AF had higher in-hospital mortality (p = 0.02) and the incidence of ischemic stroke (p = 0.01).
CONCLUSION. Persistence of new-onset AF was associated with poor outcome in critically ill patients. These findings may be in favor of the rhythm control strategy for new-onset AF.

014

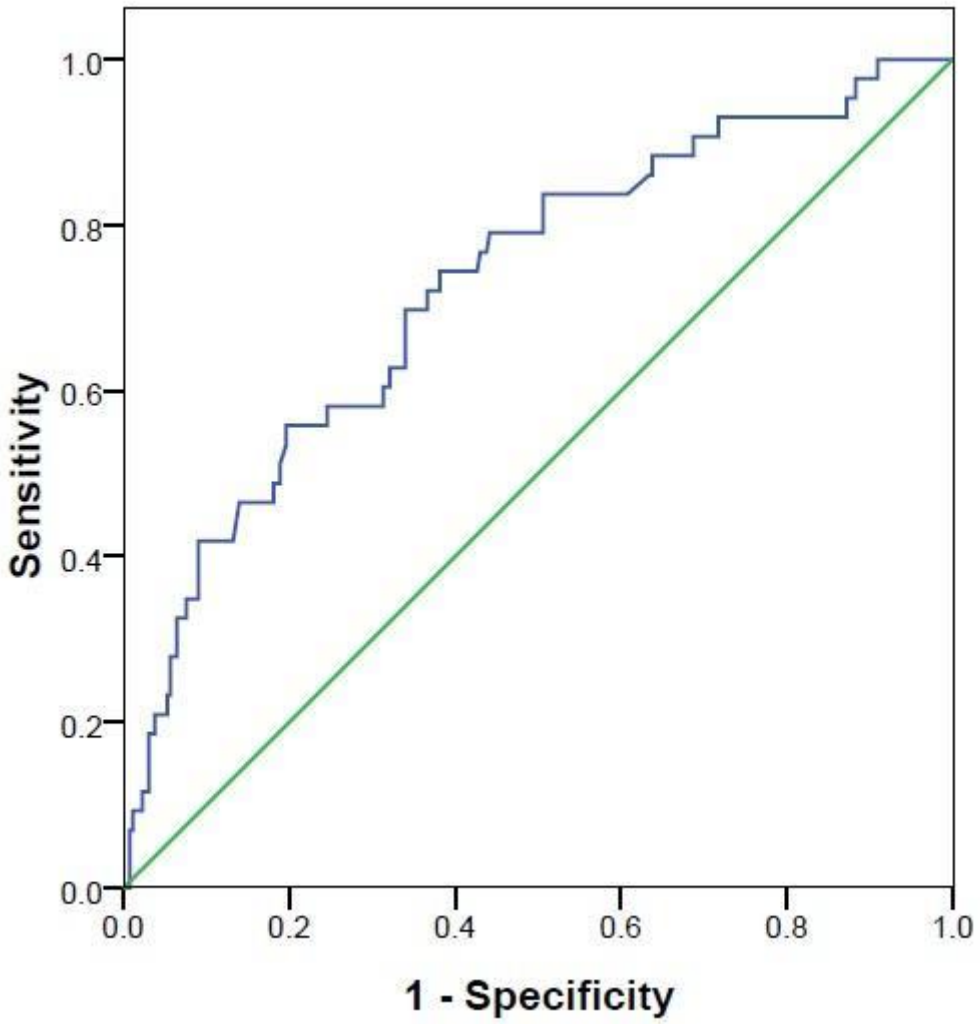
VALIDATION OF ACEF SCORE AS PREDICTOR OF 30-DAY MORTALITY FOLLOWING CORONARY ARTERY BYPASS GRAFTING SURGERY IN CIPTO MANGUNKUSUMO NATIONAL GENERAL HOSPITAL

A.Y. Djojo[1], I.P. Wijaya[2], A. Mansjoer[2,3]
[1]Faculty of Medicine, Universitas Indonesia, Department of Internal Medicine, Jakarta, Indonesia, [2]Faculty of Medicine, Universitas Indonesia, Department of Internal Medicine, Division of Cardiology, Jakarta, Indonesia, [3]Cipto Mangunkusumo Hospital, Cardiac Intensive Care Unit, Integrated Cardiovascular Center, Jakarta, Indonesia

INTRODUCTION. Age, Creatinine and Ejection Fraction (ACEF) score is a simple score to predict 30-day mortality following CABG surgery. It has been shown to be equivalent to more complex models. Differences in characteristic of patients in Cipto Mangunkusumo National General Hospital as the tertiary referral hospital in Indonesia may influence the score performance, hence validation is needed before implementation in practice. To the best of our knowledge, this is the first study to report external validation of ACEF score in Indonesia.
OBJECTIVES. To assess the performance of calibration and discrimination of ACEF score in predicting 30-day mortality following CABG surgery in Cipto Mangunkusumo National General Hospital.
METHODS. This was a retrospective cohort study of adult coronary artery disease patients undergoing CABG surgery in Integrated Cardiovascular Center, Cipto Mangunkusumo Hospital between 2013-2015. Age, creatinine, and ejection fraction value were obtained before surgery. The subjects were followed up for up to 30 days postoperatively to assess the outcome (dead or alive). Our study protocol was approved by the Ethics Committee of the Faculty of Medicine, Universitas Indonesia. Calibration performance was assessed by Hosmer-Lemeshow test and calibration plot. Discrimination performance was assessed by the area under curve (AUC).
RESULTS. A total of 308 subjects were included in the analysis. Calibration performance of ACEF score by Hosmer-Lemeshow test showed p=0.991 and calibration plot showed r=0.95 (see **Figure 1**). Discrimination performance of ACEF score was shown by the AUC value of 0.728 (95%CI 0.644;0.811) (see **Figure 2**).



[Figure 1. Calibration plot of ACEF score]



[Figure 2. Receiver operating characteristic (ROC) curve of ACEF score]

CONCLUSIONS. ACEF score have a good calibration and discrimination performance in predicting 30-day mortality following CABG surgery in Cipto Mangunkusumo National General Hospital.
KEYWORDS. 30-day mortality, coronary artery bypass grafting (CABG) surgery, ACEF (Age, Creatinine, Ejection Fraction) score, validation
REFERENCES.
1. Ranucci M, Castelvecchio S, Menicanti L, Frigiola A, Pelissero G. Risk of assessing mortality risk in elective cardiac operations: age, creatinine, ejection fraction, and the law of parsimony. Circulation. 2009;119(24):3053-61.
GRANT ACKNOWLEDGEMENT. *This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.*

015

EFFECT OF LEVOSIMENDAN ON THE SHORT-TERM CLINICAL COURSE OF CARDIOMYOPATHIC PATIENTS POST CARDIAC BYPASS SURGERY

W. Abukhudair[1], M. Alnajjar[2], M. Rajab[1], M. Shennawy[1], H. Albuti[1]
[1]King Fahd Armed Forces Hospital, Jeddah, Saudi Arabia, [2]King Fahd Armed Forces Hospital, Post Adult Cardiac Surgery CCU, Jeddah, Saudi Arabia

BACKGROUND. This study evaluated the efficacy and safety of levosimendan, given intravenously to cardiomyopathic patients post cardiac bypass surgery. Levosimendan improves cardiac function by a novel mechanism of action compared to currently available drugs. We hypothesized that, in patients with severely compromised ventricular function, the use of levosimendan would be associated with better postoperative cardiac function than with inotropic drugs that increase myocardial oxygen consumption.
METHODS. 250 patients with a preoperative ejection fraction ≤30% scheduled for elective cardiac surgery with cardiopulmonary bypass were subjected to two different inotropic protocols: group A (levosimendan goup) levosimendan started immediately after the release of the aortic cross clamp by loading dose 6 µg / kg administered in 10 minutes then 0.1 mg /kg/ min continuous intravenous infusion in addition to our standard protocol started immediately after finishing the loading dose and maintained for 48 hours infusion. And group B (usual protocol group) received our standard protocol for these cases milrinone ± dobutamine and noradrenalin, adrenalin and dopamine according to blood pressure. The treatment was masked to the observers.
We assessed Haemodynamics of patients using Flotrac, Invasive arterial pressure monitoring, blood lactate level in ABG samples
RESULTS. Cardiac Index was similar between groups initially after surgery, but it declined 12 h after surgery in the usual inotropic group but not in the levosemindan group ($P < 0.05$ between groups) despite similar filling pressures. Total dose, duration of inotropic drug administration and norepinephrine dose were lower in the levosimendan group than in the usual inotropic group ($P < 0.05$). The duration of tracheal intubation and Intensive care length of stay were shorter in the Levosemindan group compared with the group B ($P < 005$). Three patients in the group B died within 30 days of surgery but only one in levosemindan group.
CONCLUSIONS. In cardiac surgery patients with a low preoperative ejection fraction, Cardiac index and stroke volume was better maintained when adding levosimendan to our inotropic protocol. Also, ICU LOS was decreased with no increased risk of adverse Cardiovascular events.

016

LASER DOPPLER FLOWMETRY CAN BE AN ALTERNATIVE TO CAPILLARY REFILL TIME FOR EVALUATING PERIPHERAL CIRCULATION

K. Takahashi[1], K. Sakaguchi[1], Y. Onodera[2], A. Sugiura[2], T. Kobayashi[1], Y. Yashiro[1], K. Kawamae[2], M. Nakane[1]

[1]Yamagata University Faculty of Medicine, Department of Emergency and Critical Care Medicine, Yamagata, Japan, [2]Yamagata University Faculty of Medicine, Department of Anesthesiology, Yamagata, Japan

INTRODUCTION. Measurement of the capillary refill time (CRT) at a fingertip is useful for the circulatory assessment of shock patients, but the variation in measured values is large. Recently, a small laser-Doppler-flowmetry (LDF) instrument has been developed, and it has become possible to quantitatively measure peripheral circulating blood flow easily in the emergency room and intensive care unit.

OBJECTIVE. To compare the values of CRT and LDF (Pocket LDF: JMS, TOKYO) measured in the same finger by the same single physician.

METHODS. The subjects included a total of 300 patients (emergency patients and ICU inpatients). CRT was performed by the 3-second compression method on the nail bed of the patient's thumb and measuring using a stopwatch. Blood flow was measured for 3 minutes using LDF and the average value over the last minute was used. JMP 11 was used for statistics.

RESULTS. Among the patients studied, the median (range) CRT was 1.62 sec (0.92 to 3.36), and blood flow measured by LDF was 40.73 ml/min (2.18 to 92.46). Between the CRT and blood flow measured by LDF, a moderate negative correlation was observed ($R^2 = 0.49$, $p < 0.001$). Considering the β error as 10% of the measured CRT, we defined CRT positive for peripheral circulatory dysfunction as a CRT longer than 1.8 seconds and created a receiver operating characteristic curve (ROC curve) to specify the cutoff point of blood flow measured by LDF to predict peripheral circulatory dysfunction. This ROC curve showed a cutoff value of 33.9 ml/min with an area under the curve of 0.92, a sensitivity of 70.3%, and a specificity of 90.2%.

DISCUSSION. In our study, a moderate correlation exists between the CRT and LDF and the cutoff point of blood flow measured by LDF with a favorable ROC curve. Using LDF may reduce the variation in evaluating the peripheral circulation that occurs with CRT due to different evaluators and methods. Additionally, a high specificity up to 90.2% is favorable since LDF is expected to be a screening tool because of its convenience and reproducibility.

CONCLUSIONS. Using LDF in the emergency and intensive care areas to quantitatively assess peripheral circulation may further improve the evaluation of a patient's circulation.

GRANT ACKNOWLEDGMENT. None