

MEETING ABSTRACTS

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001611

The outcome of Acute kidney injury in the intensive care unit of A sub Saharan Tertiary Hospital

M. Oladimeji¹, G. Asiyabi², A. Fadeyi³, O. Belle⁴, S. Olanipekun³, O. Adekola⁵

¹Anesthesia & intensive care unit, Lagos University Teaching Hospital, LAGOS, Nigeria, Federal Republic of; ²Anaesthesia & intensive care, Lagos University Teaching Hospital, LAGOS, Nigeria, Federal Republic of; ³Intensive care unit, Onelife Hospital, LAGOS, Nigeria, Federal Republic of; ⁴Surgery, Lagos University Teaching Hospital, Lagos, Nigeria, Federal Republic of; ⁵Intensive care unit, Onelife Hospital, LAGOS, France

Correspondence: O. Adekola

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INTRODUCTION. Acute kidney injury is characterized by sustained rise in serum creatinine and reduction in urine output. It may also be accompanied by retention of nitrogen products and electrolyte disturbances. The incidence of AKI varies between 36 and 67% among critically ill patients with a mortality rate of 50 to 70%.

OBJECTIVES. We determined the incidence and outcome of acute kidney injury in critical care patients

METHODS. A total of 177 patients, 18 years and older were studied. Data were collected on admission and daily during hospitalization until discharge or death. AKI was defined as: 1) absolute increase in serum creatinine ≥ 0.3 mg/dL or ≥ 1.5 times the baseline level, or 2) requirement for renal replacement therapy, or 3) oliguria defined as urine output < 400 ml in 24 hours

RESULTS. AKI was observed in 34.3% of our ICU admission, among of whom 4.7% developed AKI during their ICU stay. The mean duration of onset of AKI was 1 (25th to 75th percentile 1-2) days. The overall ICU 30 days mortality was 42.4%, however the 30 days mortality in patients with AKI was 85.5%. Renal replacement therapy was only possible in 36.6% patients. Inotropic support was administered in 59.1% patients with AKI. Factors mitigating against dialysis included protracted hypotension in 63.6%, lack of fund in 18.1%, delayed screening for HIV and Hepatitis B in 18.3%.

CONCLUSION. Acute kidney injury is a common problem in the critically ill patient and is associated with a high mortality rate at our institution.

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000742

Acute kidney failure in the post operatory of peripheral vascular surgery, a prospective single- center experience

GL. Valente, BMN. Lucena, SRS. Fonseca, LMDS. Malboulsson, MJC. Carmona

Department of anesthesiology, Faculty of Medicine, University of São Paulo, São Paulo, Brazil

Correspondence: G.L. Valente

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INTRODUCTION. Acute kidney failure (AKF) is identified in 30-40% of cases in post-operative patients. There is limited literature on the importance and the correlation between peripheral vascular surgeries and the development of AKF.

OBJECTIVES. Analysis of the connection between factors related to AKF or acute-on-chronic-kidney failure (AOCKF) in the ICU during the first 7 days after peripheral vascular surgeries, for example: arterial bypasses, amputations, angioplasties and embolectomies.

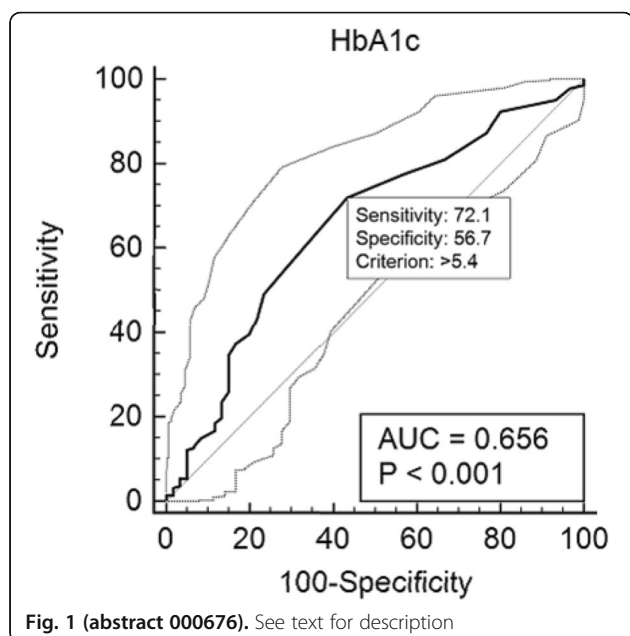
METHODS. The definition of AKF is defined by the AKIN: abrupt increase in serum creatinine ≥ 0.3 mg/dL or 50% from the baseline. This study is prospective, observational and non-randomized. Patients on previous dialysis were excluded. Continuous variables were summarized as medians and ranges, and categorical variables as percentages.

RESULTS. A database of 65 patients was evaluated. The data was acquired between April 2018 and March 2019. The median age was 70 (range 22-88 y); 73% were male. 25 patients (38%) had AKF.

The average age in both groups is similar, as well the prevalence of comorbidities (hypertension and DM), distribution of sexes and mortality. 46% of the patients with chronic-kidney disease developed an AOCKF (28% of the AKF group). The frequencies of the following values are bigger in AKF group: Re-surgery, emergency surgery, use of vancomycin, gentamicin or amikacin.

CPK values were different in the two groups (4332 AKF; 2937 no AKF), but our sample was inconclusive to demonstrate a real correlation with AKF. When CPK in the first 24h was divided in three categories ($< 10,000$; $10,000-20,000$ and $> 20,000$), it was observed in a Kaplan Meier analyses a correlation between these categories and post-operative hemodialysis.

CONCLUSION. Despite our small sample, CPK when analyzed as a categorical variable, showed a statistical significance in patients submitted to hemodialysis. Despite differences in both groups, as CPK average as well as further factors related to a more serious condition; like patient urgency surgery, re-surgery and the use of antibiotics; our analysis was inconclusive to establish those factors as predictive

**001173****Role of venous return in the resolution of obstructive shock**A. Hana¹, P. Werner-Moller², J. Takala¹, S. Jacob¹, D. Berger¹¹Department of intensive care medicine, Inselspital, Bern University Hospital, University of Bern, Bern, Switzerland; ²Department of anaesthesiology and intensive care medicine, Sahlgrenska University Hospital, University of Gothenburg, Gothenburg, Sweden**Correspondence:** A. Hana*Intensive Care Medicine Experimental* 2019, **7(Suppl 3)**:001173

INTRODUCTION. Severe obstructive shock with cardiac arrest leads to a decline in cardiac output of primarily the right heart chamber. We hypothesize, that with return of spontaneous circulation (ROSC) after an obstructive cardiac arrest, the right heart generates cardiac output several heartbeats before the left heart, thereby proving the primary role of venous return for the reconstitution of the circulation. **OBJECTIVES.** Description of the time course of stroke volume generation of right and left heart after resolution of an obstructive cardiac arrest to clarify the role of venous return in the achievement of ROSC.

METHODS. This abstract is based on data from a previous study (1). We induced obstructive circulatory arrest in ten anesthetized pigs (equipped with an ultrasonic flow probe on the pulmonary artery and a pressure catheter in the carotid artery) by balloon occlusion of the right atrium (inflatable high-compliance balloon) over one minute in five experimental conditions (PEEP5, PEEP10, euvoemia, bleeding and hypervolemia). Pulmonary artery pressure and flow tracings confirmed circulatory arrest and ROSC. Single heartbeats were analysed during balloon inflation to create circulatory standstill and then deflation of the balloon after one minute to achieve ROSC. ROSC was defined as the earliest heart beat from which a steady rise in PA flow over the succeeding beats could be observed. After ROSC, PA flow increases by 200%, MAP increases by 10% and arterial stroke volume (calculated from pulse contour) increases by 50% were considered clinically significant. The number of beats until these values were achieved were counted. Comparisons were done with Friedman's ANOVA on ranks and post-hoc Tukey's test and data presented as median (range).

RESULTS. We achieved ROSC in 43/50 conditions after 46 (21-84) sec with a flow in the pulmonary artery of 92 (-18-800) ml/min and a mean arterial pressure of 32 (18-51) mmHg. During arrest, MAP

increased by 8 (1.9-10) mmHg due to increased sympathetic activity occurring 19-22 sec after arrest (1), while no significant change in PA flow was observed. After ROSC pulmonary flow doubled after 2 (1 to 20) heartbeats, whereas MAP increased 10% only after 7 (1 to 20) beats and arterial stroke volume increased 50% only after 15 (1 to 20) beats, $p < 0.001$ for all comparisons. Arterial stroke volume and ABP increased by 50% or 10% after 120 (0 to 339) ml or 3.2 (0 to 9) ml/kg and 41 (0 to 333) ml or 1 (0 to 9) ml/kg flow through the pulmonary artery, respectively. Central venous pressure consistently and immediately dropped after ROSC.

CONCLUSION. We interpret the time delay between the increase in pulmonary artery flow and arterial pressure and stroke volume as proof of the role of venous return for the recovery from obstructive shock. This is supported by the immediate drop of central venous pressure after ROSC. To what extent these findings may be generalized to non-obstructive forms of cardiac arrest needs further investigation.

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001610**CO2 oscillation during Cardiopulmonary Resuscitation: mechanical versus manual chest compression in a porcine model of cardiac arrest**A. Magliocca¹, E. Rezoagli², G. Bellani², G. Ristagno³¹Mario Negri Institute for Pharmacological Research, Milan, Italy; ²School of medicine and surgery, University of Milano-Bicocca, Monza, Italy;³Fisiopatologia medico-chirurgica e dei trapianti, University of Milan, Milano, Italy**Correspondence:** A. Magliocca*Intensive Care Medicine Experimental* 2019, **7(Suppl 3)**:001610

INTRODUCTION. Capnographic CO₂ oscillations have been described during Cardiopulmonary Resuscitation (CPR).

The Airway Opening Index (AOI) has been recently proposed to quantify the CO₂ oscillations at capnography during chest compressions (CCs). (1) It has been proposed that a low oscillating EtCO₂ during CCs is a result of airway collapse, which obstructs the expiratory airflow. The aim of this study is to assess the change of AOI over time during 18 minutes of CPR in a porcine model of cardiac arrest (CA). We will assess the relationship between manual and mechanical CCs, the compliance of the respiratory system (Cpl,rs) and the duration of CPR with the AOI. **METHODS.** Adult male swine were randomized to 18 min of CPR with mechanical (LUCAS® 3.0) or manual CCs after 2 minutes of CA. Mechanical ventilation was provided with tidal volume 500 ml, 10 bpm, FIO₂ 1.0, ZEEP). Hemodynamic parameters, EKG, SpO₂, EtCO₂ were continuously recorded. Cpl,rs was assessed after return of spontaneous circulation (ROSC). The AOI was computed as $\Delta\text{CO}_2/\text{CO}_2\text{max}$ and the values were averaged on the number of CCs (n=6) during each minute of CPR. **RESULTS.** The mean AOI was significantly higher in the manual CCs group compared to the mechanical group (58±5% vs 24±3%, $p < 0.0001$ Fig 1a). The AOI was higher in the manual CCs group compared to the mechanical group throughout the time of CPR. No decrease of AOI has been identified over time within each group (Fig 1b). The mean value of AOI measured at the end of CPR (minute 18) showed a good correlation with Cpl,rs ($r=0.749$, $p=0.0006$, Fig 1c).

CONCLUSION. In a randomized porcine model of CA, AOI was significantly higher in the manual compared to the mechanical CCs group during the all 18 minutes of CPR. Cpl,rs was strongly associated with the AOI at the end of CPR.

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