Poster Corner 5: Respiratory Failure And Mechanical Ventilation

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

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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.

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063 - INCIDENCE AND RISK FACTORS ASSOCIATED WITH OCULAR SURFACE DISORDERS IN VENTILATED ICU PATIENTS AND IMPACT OF PROTOCOLISED EYE CARE

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INTRODUCTION. Critically ill patients frequently have poor eyelid closure and a reduced ability to use the protective blink reflex because of sedative agents used to enable other aspects of care. In addition, patients requiring artificial ventilation may suffer decreased tear production, decreased resistance to infection and a decrease in venous return leading to conjunctival chemosis. These factors lead to an increased risk of eye surface disease including corneal exposure and microbial keratitis.
OBJECTIVES. We planned to do a study looking at the incidence and risk factors associated with ocular surface disorders in ventilated ICU patients and the impact of a protocolised eye care on the incidence and outcome
METHODOLOGY AND STUDY DESIGN. This study was done in our 14-bed mixed medical surgical intensive care unit of Tata Memorial Hospital, Mumbai, India. All mechanically ventilated adult patients admitted in the ICU for more than 24 h where be included. This study had prospective cohort design and it was done as a before and after study in two phases. In the first phase existing Eye care practices were continued for three months and the incidence of OSDs was noted. In the second phase Protocolised Eye Care was implemented after training the nurses and incidence of OSDs was noted.
RESULTS. Total number of patients included in the study was 125 (Phase I- 62 /Phase II- 63). There was no difference in demographic variables in both the groups at baseline.
Incidence of OSD in Phase I was higher with 64% (40 out of 62 patients) developing OSD while in phase II it was 34.9% (22 out of 63).This difference of incidence was statistically significant (p = 0.001).
On uni-variate and multivariate analysis following factors were found to be risk factors associated with OSD in ICU: highest sedation score (p= 0.001), duration of ICU stay (p = 0.0001) and days of Tube feeding (p=0.002) .These risk factors were evenly distributed in both the phases. On Cox regression analysis it was found that patients in Phase I were 11.732 (p= 0.010, 95 % CI=1.814 - 75.852) times more prone to develop OSD as compared to patients in phase II. The difference in incidence in both the phases was attributable to implementation of protocolised eye care in phase II. There was no difference in cost of therapy in phase II with application of protocolised eye care.
CONCLUSION. Risk factors associated with OSDs in ICU are length of ICU stay, highest sedation score and days of tube feeding. Protocolised eye care helps in decreasing the incidence of OSDs.

064 - GLOBAL LUNG DERECRUITMENT AFTER PASSIVE-HUMIDIFIER EXCHANGE DURING CONTROLLED MECHANICAL VENTILATION: A TRIAL WITH ELECTRIC IMPEDANCE TOMOGRAPHY

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INTRODUCTION. Electric impedance tomography (EIT) is a technique of lung imaging that allows lung function to be monitored in real time, (1) and it is usually used to detect differences in end expiratory lung volume after a PEEP trial to determine the “best” PEEP (2,3), there are no recommendations regarding the prevention of lung derecruitment after a disconnection for passive-

humidifier exchange, and it is not known if this short maneuver (usually between 30-45s) is associated with lung volume loss.
OBJECTIVES. This study was performed to test the hypothesis that the disconnection for humidifier exchange might produce global lung volume derecruitment during mechanical ventilation at PEEP of 8cmH2O or higher.
METHODS. Randomized, open label, controlled trial; the maneuver consisted in 45 seconds of disconnection (for passive-humidifier exchange) randomized to tube clamping or without it, arbitrary units of global impedance in the EIT were captured with Pulmovista software and converted to tidal volume; the difference of tidal volume between basal and the maximal tidal volume achieved after 5 min of follow up after reconnection was calculated, the statistical difference of the volume loss was set using Mann-Whitney U test. After the recruitment of the first 10 patients to determine variances we estimated a sample of 24 to detect a difference of 80mL with a power of 0.80 and 0.95 confidence.
RESULTS. We randomly assigned 33 mechanically ventilated patients to humidifier exchange with or without tube clamping. Median PEEP was 8cmH2O with IQR 8-10cmH2O in both groups. The volume loss after reconnecting had a median of 20mL (0-68mL) for the clamped group and 12.5mL (0-45mL) for the non-clamped group. The difference between groups was statistically non significative .
CONCLUSIONS. We found no association between disconnection from the mechanical ventilator for a period of 45 seconds and a significant global derecruitment estimated with arbitrary units of impedance; there was no difference in the volume loss between clamped and non-clamped groups.
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GRANT ACKNOWLEDGMENT. Financing for the trial was intramural.

065 - THE PERFORMANCE OF MULTIDISCIPLINARY INTERVENTIONS TO IMPROVE THE OUTCOME OF PATIENTS WITH MECHANICAL VENTILATOR IN THE INTENSIVE CARE UNIT

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OBJECTIVES. The use of mechanical ventilation (MV) caused by acute respiratory failure (ARF) may increase mobility and mortality in intensive care unit (ICU). This study was to find whether conducting ABCDE bundle (daily **A**wakening, **B**reathing trial, **C**oordination of drugs, **D**elirium survey and treatment, and **E**arly mobilization) was better than previous routine physiotherapy in reducing the stays of MV and ICU in MV patients.
METHODS. The study was conducted in a 19-bed medical ICU of a medical center in Southern Taiwan. An Interdisciplinary Team (critical care nurse, nursing assistant, respiratory therapist, physical therapist and family) initiated the protocol within 72 hours of mechanical ventilation when patients become hemodynamically stable (no vasopressor and a fraction of oxygenation< 60%). We performed daily sedation interruption, coordination and avoidance of benzodiazepine as possible, and kept patients awake and ventilator weaning trail as tolerable condition. We used the Confusion Assessment Method for the ICU (CAM-ICU) for delirium survey. We also added communication tool, music therapy and environmental adjustment to decrease the incidence of delirium. Finally, a four-step mobilization program was performed to improve cardio-pulmonary function. The study periods were divided to phase 1(before improvement, from Jan 1 to Mar 31, 2016), phase 2 (during improvement, from July 1 to Sep 30, 2016) and phase 3 (after improvement, from Oct 1 to Nov 30, 2016). We performed an education program of quality improvement from Apr 1, to June 30, 2016. The endpoint was the outcome of ARF patients with MV.
RESULTS. Compared with previous routine daily care on phase 1, the mean length of MV was decreased from 8.8 days to 5.2 days on phase 2, and eventually dropped to 5.1 days on phase 3. Besides, the mean ICU stays were decreased from 7.3 days to 7.2 and 6.8 days, the mean hospital costs also decreased from 420,000 New Taiwan Dollars (NTDs) to 180,000 and 160,000 NTDs. There was no any unplanned extubation, nor falling down episode during the study period. The bundle

compliance and the prevalence of delirium were shown on figure 4.
CONCLUSIONS. With a multi-disciplinary quality improvement project, including the cooperation with all medical staffs and family, we significantly improved the expenditure and quality of MV patients with ARF, as similar to other studies. We will apply the successful experiences to the other ICUs in our hospital, and may serve as a benchmarking for other hospitals in Taiwan.

066 - BEDSIDE ASSESSMENT OF GRADIENT BETWEEN END TIDAL AND ARTERIAL CARBON DIOXIDE IN ACUTE RESPIRATORY DISTRESS

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INTRODUCTION. End-tidal Carbon dioxide (EtCO2) is used in mechanically ventilated patients as a quick and noninvasive assessment of the adequacy of ventilation and dead space. The gradient between End-tidal CarboEtCO2) and partial pressure of arterial carbon dioxide (PaCO2), is directly proportional to the degree of physiologic dead space which is a major finding in ARDS.
OBJECTIVES. To evaluate role of measuring gradient between EtCO2 and PaCO2 in adults with ARDS.
METHODS. 51 cases were recruited after the diagnosis of ARDS as defined by the Berlin definition. Patients were mechanically ventilated as per lung protective protocol. Daily arterial blood gases were collected and for every sample EtCO2 value was electronically collected by capnography at endotracheal tube for the first 5 days. The gradient between ETCO2 and arterial co2 was derived mathematically,
RESULTS. Patients were divided into survivors and nonsurvivors. 26 cases were due to extrapulmonary cause and 25 cases due to pulmonary cause. The mean value of APACHE score for all cases on admission was 21.6. The mean Length of Stay in ICU was 12.7 days.We found significant negative correlation between PaO2/FiO2 and gradient at day 2, 4 and day 5 , and significant positive correlation between gradient on admission and APACHE score ($r=0.4$, $p \leq 0.05$). Non survivors had significantly higher gradient and lower EtCO2 and PaO2/FiO2 levels at all time intervals. PaCO2 alone was not found significantly different between survivors and non survivors.
CONCLUSION. Gradient between end tidal and arterial co2 can be used in assessment severity in ARDS.

067 - PRONE POSITIONING BEFORE EXTRACORPOREAL MEMBRANE OXYGENATION FOR SEVERE ACUTE RESPIRATORY DISTRESS SYNDROME: A MULTICENTER STUDY

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INTRODUCTION. Based on recent positive proning trials [1], prone positioning may be considered before extracorporeal membrane oxygenation (ECMO) in patients with severe acute respiratory distress syndrome (ARDS). However, prone positioning may also needlessly delay ECMO. To date, the use of prone positioning before ECMO for severe ARDS remains controversial.
OBJECTIVES. To evaluate the clinical outcomes of patients with severe ARDS who underwent prone positioning before ECMO.
METHODS. A total of 223 adult patients who were admitted to the intensive care units of 11 hospitals in Korea and were treated with ECMO were reviewed. Among these, 62 who required ECMO for

severe ARDS were analyzed. Patients were divided into groups who were (prone group, n = 28) and were not treated with prone positioning (no prone group, n = 34) before ECMO.
RESULTS. Baseline characteristics were not different between the groups. The prone group had a numerically lower median peak inspiratory pressure (27 cmH_2O vs. 30 cmH_2O) and lower median dynamic driving pressure (16 cmH_2O vs. 18 cmH_2O) before ECMO. 30-day mortality was 21% in the prone group and 41% in the no prone group (P = 0.098). ECMO weaning failure rate was numerically lower, and mechanical ventilation weaning rate and mechanical ventilation-free days at day 60 were numerically higher in the prone group. In the no prone group, median dynamic compliance marginally decreased shortly after ECMO, but no change was observed in the prone group.
CONCLUSIONS. Prone positioning before ECMO is a reasonable approach for management of patients with severe ARDS. In addition, prone positioning before ECMO may provide more lung protective ventilation than the supine position.
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068 - A PROSPECTIVE STUDY TO DETERMINE THE SAFE DEPTH OF INSERTION OF ENDOTRACHEAL TUBES DURING NASAL AND ORAL INTUBATIONS IN THE INDIAN POPULATION

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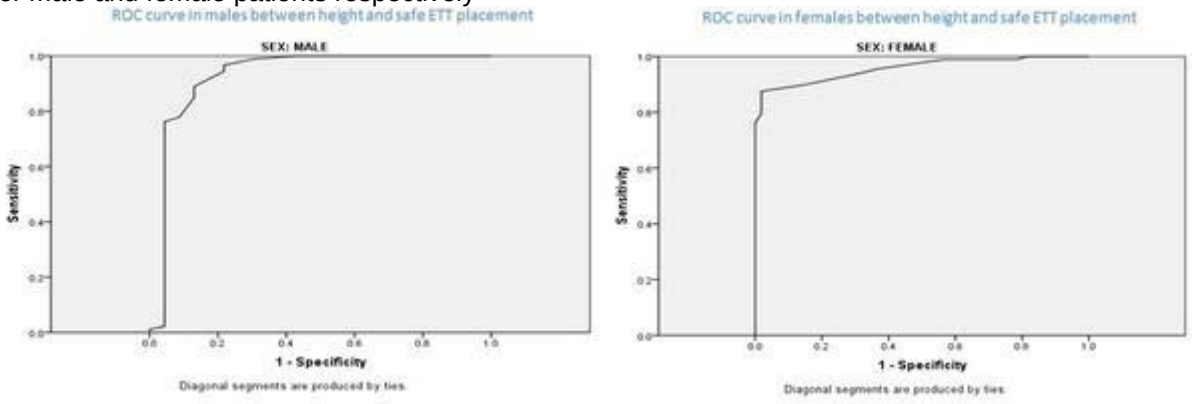
INTRODUCTION. Endotracheal tube (ETT) placement in trachea at an incorrect depth may cause unwarranted complications.ETT fixation at a depth of 20 and 22 cm at the incisor for oral and 26 and 28cm for nasal in females and males respectively, has been shown to be superior method of ensuring safe depth of ETT placement(2.5-4 cm from carina)[1],as compared to auscultation and symmetric chest expansion,especially in emergency situations and areas with ambient noise like intensive care unit.
OBJECTIVES. To determine whether the above recommendations for ETT insertion depth for nasal and oral intubations can be safely used in all males and females patients and if not, to determine the safe depth of ETT placement in those individuals
METHODS. In adult patients undergoing oral/nasal intubation, the ETT was fixed at the recommended depth of 20/22 cm. for oral and 26/28 cm for nasal intubations,in females and males respectively.A flexible fiberscope was used to measure the distance from carina to tube tip, based on which the safe and unsafe ETT insertions were determined. The total length of airway from the carina to the incisor/nasal alae was measured and the safe minimum and maximum depth of insertion was calculated by subtracting 2.5 and 4 cm respectively from the total length and mean was used to calculate the safe depth of insertion.
RESULTS. There were 347 patients and 22.5% had unsafe intubations (11.3% in males and 38.5% in females).Height and female gender were independently associated with safe depth of intubation.Using the height of the patient, we were able to discriminate safe and unsafe intubations with area under the ROC curves of 0.93(0.85-1) for males and 0.96(0.92-0.98) for females with 89% and 87.5% sensitivity respectively and 99% and 98.2% specificity respectively and cut off values of 160.5 cm and 155.5 cm for male and female patients respectively



[ROC curves comparing the ability of height to discriminate between safe and unsafe ETT placement]

.In patients with lesser height, 19/21cm for oral and 25/27cm for nasal intubations in females and males respectively were found to be safe.

Mode of Intubation	Safe Upper Limit	Safe Lower Limit	Mean Safe Depth
Oral - Male	21.9	20.4	21.2
Oral - Female	19.9	18.4	19
Nasal - Male	27.8	26.3	27.05
Nasal-Female	25.5	24.05	24.8

[Safe depth of tube fixation]

CONCLUSIONS. Previous recommendations for tube fixation can be safely used only in males and females with height >160 cm and>154 cm respectively.In rest oral 19/21 mark and nasal 25/27 in females and males is appropriate.
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069 - CORRELATION BETWEEN FFP TRANSFUSION AND REINTUBATION RATE IN ICU PATIENTS

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INTRODUCTION. While plasma donation is still necessary as a unique source of human proteins and to treat coagulation disorders, FFP administration seems to have high rate of inappropriate indication. After all, FFP transfusion is not risk free, and is associated among others with circulatory overload in recipients, leading in increasing reintubation risk.
OBJECTIVES. The aim of our retrospective observation study was to test the hypothesis that a correlation exists between FFP transfusion and reintubation rate, in our both medical and surgical ICU served in community hospital.
METHODS. From January 2006 to December 2014 admitted to our ICU 692 patients, mean age 65.1 years, mean length of ICU stay (LOS) 13.7 days, mean mechanical ventilation duration per ventilated patient (V. Days) 11.83 days, mean APACHE II score on admission 21.3, predicted mortality 39.2 %, actual mortality 31.50 %, Standardized Mortality Ratio (SMR) 0.80.From our database we looked for the reintubation rate (episodes per ‰ ventilation days) and the following values and indexes according FFP transfusion per year from 2006 to 2014 (mean values). Total, per patient, per hospitalization days (HD), per patient under mechanical ventilation (pts V) and per ventilation days (VD) Using linear correlation method, we looked for linear slope, correlation coefficient (r), and coefficient of determination (r^2), and by linear regression method using ANOVA test we looked for p value, according reintubation rate and FFP transfusion.
RESULTS. Correlation between reintubation rate and FFP transfusion indexes.

FFP	Slope	r	r2	St. Error	L. CI	U. CI	p value
Total tran	-0.538	-0.0865	0.0074	2.3430	-6.079	5.0030	0.8249
Trans per pt	0.0645	0.6125	0.3752	0.0314	-0.009	0.1389	0.0795
Trans per H.D	0.0055	0.6788	0.4607	0.0022	0.0001	0.0108	0.0444
Trans per	0.0685	0.6182	0.3822	0.0329	-0.0093	0.1465	0.0760

Pt V							
Trans per VD	0.0068	0.6288	0.3953	0.0031	-0.0007	0.0144	0.0697

[Correlation among reintubation rate and FFP index]

CONCLUSIONS. According to our data, there was no statistically significant correlation detected between reintubation rate and total FFP transfusion, while there was a positive, moderate correlation between reintubation rate and FFP transfusion per patient, per patient ventilated and per ventilation days, yet not quite significant. On the other hand, there was detected a statistically significant, positive, moderate correlation between reintubation rate and FFP transfusion per hospitalization days. Our data suggest that a correlation exists between FFP transfusion and reintubation rate and a circulatory overload due to FFP transfusion may have an impact on reintibation rate in ICU patients.

070 - INHALED NITRIC OXIDE IN NEUROGENIC PULMONARY EDEMA

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INTRODUCTION. We report our experience about the use of inhaled nitric oxide (iNO) as rescue therapy for hypoxic respiratory failure (HRF) in patients affected by neurogenic pulmonary edema (NPE), a complication of acute neurologic illness (ANI) not explained by cardiovascular or pulmonary pathology[1].
METHODS. We consecutively screened from July to October 2017 thirteen patients admitted to our Intensive Care Unit (ICU) affected by ANI. Seven of these patients (4 with subarachnoid hemorrhage, 3 with intracranial hemorrhage) developed NPE. When our clinical diagnosis of NPE was indirectly confirmed by chest x ray and echocardiography (excluding cardiac failure) we promptly began a one hour trial of iNO at the initial dose of 5 ppm. Only in presence of PaO_2/FiO_2 improvement we continued iNO, then we reduced the dose to 2 ppm up to stop. Arterial blood gas analysis were performed before starting iNO ,1 hour after, and twice daily.
RESULTS. Patients' mean age was 55 years old, six were male, none had a history of heart disease. The Glasgow Coma Scale at admission was 6. The mean interval between the onset of ANI and the worsening of PaO2/FiO2 was 85 hours and all patients underwent to tracheostomy 116 hours after ICU admission. The average length of iNO was 89 hours. The values of PaO2/FiO2 before and after iNo were respectively as follows: 103 mmHg (range from 63 to 162) and 263 mmHg (range from 212 to 324). The length of ICU stay was 29 days and all patients were discharged to other departments.
CONCLUSION. Evidences don't support INO in patients with HRF[2], but in our experience it gave a robust improvement in HRF. Thus iNO could represent a bridge therapy in these patients who can't be treated with other rescue therapies (prone positioning, recruitment maneuvers). More experience are needed to endorse our results.
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071 - EVALUATION AND PROGNOSTIC VALUE OF BIOLOGIC NEUTROFILIC MARKERS, IN SERUM AND BRONCHIAL SECRETIONS OF PATIENTS WITH SEVERE EXACERBATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE, IN INTENSIVE CARE UNIT

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INTRODUCTION. Chronic obstructive pulmonary disease (COPD) is characterised by a non-specific inflammation. During exhacerbations of COPD, neutrophils are increased. Molecules associated with neutrophilic inflammation, could potentially serve as biomarkers of severity of COPD exacerbations, as well as future potential therapeutic targets.
OBJECTIVES. To evaluate neutrophilic inflammation molecules, in bronchial secretions and serum of COPD exacerbation requiring mechanical ventilation patients, admitted to Intensive Care Unit (ICU), and its relations with prognostic factors.
METHODS. We take bronchial aspirate (BAS) and 5 ml of venous blood samples, collected on days 1 and 3 of ICU stay and a blood sample the day of discharge. They were centrifuged at 3000 rpm for 15 minutes. Serum and BAS were conserved at -80ºC for been analised with multiplex protein arrays kit. The molecules studied were: GMCSF, IFN, IL10, IL12, IL17a, IL1B, IL4, IL23, IL6, IL8, y TNFa. We collected personal data, analytics, prognostic scales, and evolution. Statistical analyse used chi scuared, U Mann-Whitney test and Pearson correlation test. We considered statistical significant $p< 0.05$
RESULTS. We evaluate 30 patients. Median age 69.6 years, with 83,3% of males. Median ICU stay was 6 days, and global mortality 20%. Prognostic scales: Median severity APACHE II was 25.5. There were not differences between immunologic biomarkers on days 1 and 3. We found significant correlation between days of ICU stay, and GMCSF in BAS ($p< 0.001$) and IL6 in BAS ($p=0.002$). This correlation persists between hospital stay and GMCSF in BAS ($P=0.007$) and with IL6 in BAS ($p=0.048$). In first day serum, IL6 ($p=0.04$), IL8 ($p< 0.001$), and TNFa ($p< 0.001$) significant correlated with ICU stay. Also, serum IL6 of discharge correlate with hospital stay ($p< 0.007$), and we notice a significant relation between hospital stay and first day IL8 ($p< 0.001$), and first day TNFa ($p=0.012$). We don´t found relation between BAS immunologic markers with prognostic scales (APACHE II, or SOFA), neither with mortality. Serum neutrophilic inflammation biomarkers on third day of ICU stay, show significant relation with SOFA: GMCSF ($p=0.013$), IFNa ($p=0.02$), IL17a ($p=0.007$) and IL1B ($p=0.016$). There were significant relation among IL10 and hospital mortality.
CONCLUSIONS. In patients with severe COPD exacerbation, admitted to ICU, there is a relation among BAS and serum biomarkers (IL6 and GMCSF in BAS; IL6, IL8, and TNFa in serum), and prolonged stay (in ICU and in hospital). BAS biomarkers don´t correlate with severity prognostic index. In serum we found preponderance of some neutrophilic inflammation molecules as severity markers (mainly IL6, IL8, and TNFa). The level of organ disfunction (SOFA) correlate with serum markers on third day of stay, and the others severity index correlates with serum first day markers.
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072 - DESCRIPTIVE STUDY OF PULMONARY EMBOLISM IN ICU OF A THIRD LEVEL HOSPITAL.

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OBJECTIVE. Assess epidemiology, risk factors, treatment and outcome in acute pulmonary embolism (PE).
METHODS. retrospective study of PE in an ICU of a third level hospital throughout 2015 and 2016. Descriptive analysis of demographic and clinical variables.
RESULTS. 27 cases were reviewed. Mean age 60.93 ±6.7, 55.6% were women and Charlson comorbidity index 3.4 IC(2.4-4.4). At admittance in ICU: PESI 4.18±0.47, APACHE II 18.85 ±3.84 and SOFA 6.44 ±1.94. Mean stay in ICU was 2.07 days.
As risk factors 44.4% presented obesity, 22.2% hospitalization, 14.8% smoking, malignancy 14.8, oral contraceptive 11.1%, atrial fibrillation 11.1% postoperative period 7.4% and ictus 3.7%.
37% of PE were submassive and 63% massive. 58.8% of massive PE clinically expressed as cardiac arrest (41.2% shock). 80% of submassive PE were classified as intermediate-high risk. 25.9% presented deep vein thrombosis. Troponin T at admittance was 127.8 ng/mL IC(34.9-207.2) with a peak of 402.8 ng/mL IC (99-706.6). Mean D-Dimer was 15471 ng/mL in submassive PE and 33402ng/mL in massive PE. Transthoracic echocardiography (TTE) was performed in 48.1% of the cases showing 81.8% right ventricular dysfunction and 54.5% pulmonary hypertension (PH). At discharge TTE was performed in 30.8% of patients with PH in 57.1%.
59% were mechanically ventilated, mean duration of 1.5±0.68 days. Fibrinolysis was performed in 44.4% of patients (52.9% in massive PE and 30% in submassive) being contraindicated in 29.6%.

Hemorrhagic complications appeared in 25% of the patients. Mean time between diagnosis and anticoagulant instauration was 6 hours IC(0.7-11.4), 80.8% with low molecular weight heparins. Every submassive PE developed chronic PH, corresponding to 27.3% of patients. Mortality in ICU was 42.3% and in hospital 50%. Mortality at one year was 56%.

CONCLUSIONS.

1) Even though patients are young and with few comorbidity, PE admitted to ICU present a high mortality.

2) Despite some reluctance to apply fibrinolysis in submassive EP, every one of those not fibrinolized develops chronic PH.

073 - A NEW APPROACH OF AIRWAY BURNS IN SEVERELY BURNED ADULTS

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INTRODUCTION. Severe burns are the most complex form of trauma in humans. Associated airway burns have a poor outcome, with increased mortality.A burned patient, as a consequence of smoke and hot air inhalation, is at increased risk of pulmonary infections. New procedures could improve outcome.

OBJECTIVES. Improving prognosis in airway burns, decreasing mortality through pulmonary infection caused by airway burns, achieving effective antibiotic concentrations in the lungs by using local instillations more efficient then intravenous administration.

METHODS. During a 7-month period (April 1st - November 1st 2017) 14 severely burned patients with airway burns documented by bronchoscopy assessment at admission were included in the study. Cultures of bronchial secretions revealed germs sensitive to Colistin (polymyxin E). Colistin was instilled in 7 patients via the bronchoscope in the trachea and the main bronchi - 1000000 IU diluted in 20 ml saline solution, followed by suction 5 - 6 seconds later; 7 patients represent the control sample (without Colistin).

RESULTS. In our patients, the initial lesions included tracheo-bronchial mucosal hyperemia and edema, viscous mucus, highly adherent to the airway wall, saturated with soot, necrosis of the tracheal carina or bronchial bifurcation with mucosal denudation. Various studies have shown that Colistin is absent in the lung after intravenous treatment, whilst nebulization ensures efficient concentrations. Topical administration can improve progress of the mucosal injury. Bronchoscopic assessment done 48 hours after topical administration of Colistin showed a clearly favorable progress of lesions without puss or slough vs those in the control sample.

CONCLUSION. In a world with increasing antibiotic resistance, severely burned patients have serious immunosuppression and an increased risk of infections. Our study showed that topical tracheo-bronchial „old" Colistin in airway injury of severely burned patients can contribute to the resolution of lesions and improve outcome.

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074 - THE HOMBURG LUNG - EFFICACY AND SAFETY OF A MINIMAL-INVASIVE PUMP-DRIVEN DEVICE FOR VENO-VENOUS EXTRACORPOREAL CARBON DIOXIDE REMOVAL

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Extracorporeal carbon dioxide removal ($ECCO_2R$) is increasingly considered as a viable therapeutic approach in the management of hypercapnic lung failure in order to avoid intubation, to allow lung protective ventilator settings, or to facilitate weaning from invasive ventilation. This study aimed to analyze efficacy and safety of a minimal-invasive $ECCO_2R$ device, the Homburg lung. The Homburg lung is a pump-driven system for veno-venous $ECCO_2R$ with ¼" tubing and a 0.8 m^2 surface oxygenator. Vascular access is usually established via a 19F/21cm bilumen cannula in the right internal jugular vein. For this work we screened patient registries from two German centers for patients who underwent $ECCO_2R$ with the Homburg lung due to hypercapnic lung failure since 2013. Patients who underwent ECMO prior to $ECCO_2R$ were excluded. Patients who underwent $ECCO_2R$ more than one time since 2013 were only included once. In total, 24 patients (age 53.86 ± 12.49 years. 62.5% male) were included to retrospective data analysis. Ventilatory failure occurred due to COPD (50%), cystic fibrosis (16.7%), ARDS (12.5%), and other origins (20.8%). The system generated a blood flow of 1.19 ± 0.23 lpm. Sweep gas flow was 3.34 ± 2.04 l/min. Within four hours, P_aCO_2 could be reduced significantly from 82.05 ± 15.57 mmHg to 59.68 ± 12.27 mmHg, pH thereby increasing from 7.23 ± 0.10 to 7.36 ± 0.09. Cannulation-associated complications were transient arrhythmia (1/24 patients) and air embolism (1/24). Fatal complications were not registered. In conclusion, the Homburg Lung provides effective carbon dioxide removal in hypercapnic lung failure. The cannulation is a safe procedure with complication rates comparable to those in central venous catheter implantation.