P2028
Comparison between the transcutaneous carbon dioxide tension at the infraclavicular site with arterial carbon dioxide tension
Prashant Chhajed, Parag Chaudhari, Chandrashekar Tulasigeri, Arvind Kate, Rajendra Kesarwani, Joerg Leuppi, Florent Baty.

Background: Transcutaneous measurement of carbon dioxide is routinely done at the earlobe site. In patients receiving non invasive ventilation or in the intensive care setting with necklines, an alternate measurement site would be useful. The infraclavicular site has major blood vessels in its vicinity. We started to use the infraclavicular site for transcutaneous measurements of carbon dioxide using a new digital sensor.

Methods: We retrospectively compared transcutaneous carbon dioxide at the infraclavicular site with arterial carbon dioxide in 50 samples. The Sentec Digital Monitoring System (Sentec AG, Thervill, Switzerland) was used. The V-Sign digital sensor was placed on the infraclavicular site at the medial two third and one third point from the sternoclavicular joint. We evaluated its performance both in vitro and in vivo in rabbits with acid-base disorders. The pH sensor is made of N-Allyl-4-piperazinyl-1, 8-napthalimide and 2-Hydroxyethyl methacrylate, which were bonded at the distal end of the optical fiber.

Results: When comparing PtcCO2 with PaCO2 values, the Bland-Altman analysis revealed a bias of 0.15 mmHg (95% CI: [-0.76; 1.05]) with a precision of 3.18 mmHg. Linear regression analysis describes the relationship between the two sites with a slope of 0.85. Between pH values, the slope of the linear model was 0.96 ± 0.04 and the intercept was 1.58 (RSE = 2.8, R2 = 0.91).

Conclusion: The measurement of transcutaneous carbon dioxide at the infraclavicular site is feasible with a digital sensor and has a good correlation with the carbon dioxide values obtained from the arterial blood gas.

P2029
Post operative surgical patients can be successfully managed using the target oxygen saturation scheme with the BTS emergency oxygen guidance

1Chest Clinic, Southend University Hospital NHS Foundation Trust, Southend on Sea, Essex, United Kingdom; 2Department of Anaesthetics, Southend University Hospital NHS Foundation Trust, Southend on Sea, Essex, United Kingdom

Too little and too much oxygen can both prove fatal. The BTS Guideline for Emergency Oxygen used in adult patients was published in 2008. The essence of the guideline was that oxygen is prescribed according to a target saturation range and the patients subsequently be kept within the target range. The target saturation could be used in the post operative period although this was not covered in detail in the guideline. In this hospital, Anaesthetists prescribe oxygen post-operatively to target saturation. This study investigated whether this is successful.

Methods: 49 patients were studied in the post-operative ward and in the surgical ward to examine whether the BTS guideline was being followed.

Results: All patients had been prescribed oxygen to a target saturation of 94-98%. Patients on the post operative ward from 45-90 minutes. saturations were checked every 15 minutes on all patients. Only 3 saturations were below 94% and all were on the initial recording in the post op ward. The oxygen saturation was above 98% in 30 of the 42 patients on oxygen at 15 minutes and 24/40 at 30 minutes. At 60 minutes on the post op ward, 6 patients were on nasal specs (NS), 24 on simple face masks (SM) on arrival on the surgical ward, 16 were on NS and 2 were on SM. In 25 oxygen had been stopped and there was no data on 6 patients. In 6 patients on SM the flow was reduced below 5 L/min. Re-breathing may occur and this is not recommended.

Conclusion: The BTS Emergency Oxygen Guideline the target saturations can be successfully used in post operative surgical patients. Low oxygen saturations were rare but high saturations were common.

P2030
Continuous intraarterial blood pH monitoring in rabbits with acid base disorders
Weizhong Jun, Jianjun Jiang, Yuanlin Song, Chunxue Bai, Department of Pulmonary Medicine, Zhongshan Hospital, Fudan University, Shanghai, China

Acid-base balance of arterial blood is important in clinical management of seriously ill patients, especially in patients with acute lung injury or acute respiratory distress syndrome.

We developed a novel fluorosensor for continuous blood pH monitoring and evaluated its performance both in vitro and in vivo in rabbits with acid-base disorders. The pH sensor is made of N-Allyl-4-piperazinyl-1-8-naphthalimide and 2-Hydroxyethyl methacrylate, which were bonded at the distal end of the optical fiber.

The fluorescence intensity increased as the pH decreased with good reproducibility, selectivity and linearity in the pH range of 6.8 – 7.8.

2-Hydroxyethyl methacrylate, which were bonded at the distal end of the optical fiber.
The pH measurement accuracy was -0.00±0.1 pH units (n=189) in rabbits with respiratory acid-base orders. The optical pH sensor can accurately measure pH fluctuations with fast response and is promising candidate for continuous inline measurement of blood pH in critical care patients.

P2031
A preliminary study of the prevalence of hypoxaemia, hyperoxaemia, hypercapnia and acidosis in hospital blood gas specimens
Rema M. McCulloch1, Aram Randklev2, Peter E. Tofthagen3, Luke Howard4, 1 Respiratory Medicine, Salford Royal University Hospital, Salford, United Kingdom; 2Biochemistry, Salford Royal University Hospital, Salford, United Kingdom, 3Respiratory Medicine, Hammersmith Hospital, London, United Kingdom

Over or under treatment of hypoxaemia can be dangerous. We studied 3524 blood gas specimens at a university hospital. 363 samples (10.2%) were hypoxic with oxygen saturation below 90% and 2.7% were severely hypoxic with saturation below 80%. 1074 samples (30%) were hyperoxic with PO2 > 15.0 kPa. This study shows that these two conditions are relatively uncommon in hospital practice and is usually associated with respiratory rather than metabolic acidosis. Hyperoxaemia (30% of samples), hypercapnia (27% of samples) and respiratory acidosis (21% of samples) were relatively common. This suggests that oxygen needs to be used with more caution in hospitals in the light of recent studies showing increased mortality associated with hyperoxaemia in a range of common clinical conditions.

P2032
Acoustic respiratory monitoring (ARM) of wheeze (Wz) and cough (C) in the pediatric emergency department (PED)
Sigmond Kharsach1, Alex Gileles-Hillel1, Ibrahim Omari1, Virginia Kharasch2, Eitan Kerem1, 1Pediatrics, Hadassah-Mount Scopus, Jerusalem, Israel; 2Critical Care, Children's Hospital, Boston, MA, United States

Background: Wz and C are common in the PED, but are only assessed qualitatively and intermittently. We evaluated the feasibility of quantitative ARM in a noisy PED.

Methods: 11 PED dyspea patients (7m-19y) were monitored by ARM (PulmoTrack® KarmelSonix, Israel) using 2 PPG sensors, an effort belt and an ambient microphone (MIC). WheezeRATE® (WR%) and coughSOUND® (CS) were continuously measured.

Results: Recordings of all 11 patients generated usable data (t=146 min, 93-314 min) with good ambient noise rejection. 5 patients had bronchitis (BR), 3 asthma (AS), 2 pneumonia and 1 cough-variant asthma (C-VA). C was the most prominent feature with 100% of children having AS. A transient reduction of CC occurred after hypertonic Saline in 2/5 BR patients, after ventoline in 1/3 AS and in 1/1 C-VA patients. WR% was elevated in 2/5 BR and 2/3 AS patients. In one patient the belt signal was poor and in one patient there was a transient disconnect of the MIC resulting in false detection of ambient noises as Wz.

Discussion and conclusions: We found that high CC is the most common sign in patients with dyspea and that CC reduction in response to therapy provided valuable clinical information. Continuous ARM of wheeze and cough is feasible in a noisy PED. Monitoring a larger population is needed to fully assess the clinical value of ARM in the PED.

Acknowledgement: S Godfrey, N Gavriely and E Balouka from KarmelSonix assisted in data recording and analysis.

P2033
The use of plasma n-terminal pro B-type natriuretic peptide (proBNP) concentrations in differential diagnosis of comorbidity pulmonary patients Perlat Kapisyzi1, Dhimitraq Argjiri1, Anila Mitre2, Jeta Beli1, Anila Aliko1, 1Internal Medicine 2, Oita University Faculty of Medicine, Oita, Oita, Japan; 2Radiology, Oita University Faculty of Medicine, Oita, Oita, Japan, 3Nursing Science, Kagawa Prefectural College of Health Sciences, Tokushima, Kagawa, Japan

Rationale. Discriminating cardiogenic pulmonary edema (CPE) from acute lung injury (ALI) or acute respiratory distress syndrome (ARDS) is clinically important since the management and prognosis of the two conditions are quite different. Previous studies showed limitations in the use of chest radiographs alone, and the usefulness of chest computed tomography (CT) has not been fully elucidated.

Objectives. To compare chest CT findings in acute phase of CPE with those of ALI/ARDS.

Methods. Emergency outpatients with acute respiratory failure (n=70), who showed bilateral pulmonary infiltrates on chest radiographs, were enrolled. Two chest physicists, who were blinded to the chest images, independently reviewed the clinical records in order to determine the diagnosis of CPE, ALI/ARDS, or mixed. Chest CT findings of these patients, except the patients diagnosed as mixed edema, were independently evaluated by two radiologists, who were unapprised of any clinical information.

Results. Forty one patients with CPE and 20 patients with ALI/ARDS (9 intrapulmonary, 11 extra-pulmonary causes) were assessed. Chest CT findings of upper lobe dominant ground-glass attenuation (GGA), peribronchovascular thickening, and right dominant pleural effusion were significant predictors for distinguishing CPE from ALI/ARDS in multivariable models. Especially, when upper lobe dominant GGA and peribronchovascular thickening were concurrently detected, all of the patients met the criteria for diagnosing CPE.

Conclusions. Chest CT at the emergency department may be a useful tool in differentiating acute respiratory failure.

P2034
Comparison of computed tomography features of acute phase of cardiogenic pulmonary edema and acute lung injury Kosaku Komiyama1, Hiroshi Ishii1, Fumito Okada2, Katsushi Satoh1, Jun-Ichi Kadota1, 1Internal Medicine 2, Oita University Faculty of Medicine, Oita, Oita, Japan; 2Radiology, Oita University Faculty of Medicine, Oita, Oita, Japan

Objectives. To compare chest CT findings in acute phase of CPE with those of ALI/ARDS.

Methods. Emergency outpatients with acute respiratory failure (n=70), who showed bilateral pulmonary infiltrates on chest radiographs, were enrolled. Two chest physicists, who were blinded to the chest images, independently reviewed the clinical records in order to determine the diagnosis of CPE, ALI/ARDS, or mixed. Chest CT findings of these patients, except the patients diagnosed as mixed edema, were independently evaluated by two radiologists, who were unapprised of any clinical information.

Results. Forty one patients with CPE and 20 patients with ALI/ARDS (9 intrapulmonary, 11 extra-pulmonary causes) were assessed. Chest CT findings of upper lobe dominant ground-glass attenuation (GGA), peribronchovascular thickening, and right dominant pleural effusion were significant predictors for distinguishing CPE from ALI/ARDS in multivariable models. Especially, when upper lobe dominant GGA and peribronchovascular thickening were concurrently detected, all of the patients met the criteria for diagnosing CPE.

Conclusions. Chest CT at the emergency department may be a useful tool in differentiating acute respiratory failure.

P2035
The causes of hemoptysis and lung hemorrhage in patients with pulmonary sarcoidosis Olga Baranova1, Valentina Molodtcova2, Alexandra Speranskaja2, 1Lung Diseases Department, Saint-Petersburg Pavlov’s State Medical University, Saint-Petersburg, Russian Federation; 2Bronchology Department, Saint-Petersburg Pavlov’s State Medical University, Saint-Petersburg, Russian Federation; 3Radiology Department, Saint-Petersburg Pavlov’s State Medical University, Saint-Petersburg, Russian Federation

Background: The hemoptysis and lung hemorrhage is very rare symptoms for...
pulmonary sarcoidosis (PS) modifying the typical clinical and radiological disease picture.

Aim: To analyze causes of hemoptysis and lung hemorrhage in PS patients (pts) with the use of modern abilities of radiological assessment (computed tomography - CT, high resolution CT - HRCT, CT with angiography, single photon emission CT - SPECT) and bronchoscopy.

Methods: We studied 30 patients (fn = 17/13) with morphologically confirmed PS with hemoptysis and lung hemorrhage (stages: 1st - 4, 2nd - 9, 3rd - 12, 4th - 5). The average age was 37,2 ± 2.3 years. All patients were subjected to clinical and radiological (HRCT, CT with angiography, SPECT) researches and bronchoscopy.

Results: The main causes of this severe complication were pulmonary embolism (17 pts including thrombosis “in situ” in 3 of them) with pulmonary arterial hypertension, atrophic bronchitis (3 pts), traction bronchocectasis (3 pts), dry cavities (2 pts), tuberculosis (1 pt). In carrying out bronchoscopy hemoptysis was found in lung tissue viral and bacterial infections (2 pts) and lung cancer (1 pt). The relapsing lung hemorrhage was observed in only one patient with 4 stage PS complicated by micrometastases in fibrotic tissues. In 3 pts bronchoscopy was performed on top of bleeding using various methods of endobronchial hemostasis.

Conclusion: Using modern methods of radiological imaging (CT, HRCT, CT with angiography, SPECT) allowed to detect the main cause of hemoptysis in PS patients – pulmonary embolism including thrombosis “in situ”.

P2036 Recognizing fatal pulmonary embolism in young adults with simple clinical measurements

Oxana Tesenko, Alexey Glechkov. Pulmonology, State Academy of Postgraduate Education, Moscow, Russian Federation

Introduction: As the incidence of pulmonary embolism (PE) in individuals older than age 45 is higher, numerous studies have shown that in young adults the diagnosis is missed more often than it is made. Death from PE in this group of patients might be considered to be most likely to be preventable. Nowadays there aren’t sufficient data to estimate risk of fatality from PE in young patients. Aim: To identify risk factors of mortality from PE in young people.

Methods: We reviewed data from 167 young patients (all male) with PE. Mean age was 44.5 ± 5.32 years. Data from StatSoft Software (version 5.0, 1997) was used for calculations.

Results: We analyzed 25 factors of inherited risk (antithrombin III deficiency, protein C and protein S deficiency, factor V Leiden mutation), acquired risk (surgery, malignancy, trauma, obesity, cigarette smoking) and presenting syndromes. Multivariate logistic regression revealed that immobility (bed rest) due to operation or severe disease) (OR 7.6, 95% CI 3.4–18.9), malignancy (OR 6, 95% CI 2.4–12.8), CI 2.1 ± 1.6), obesity (OR 2.4–12.8), obesity (OR 4, 95% CI 2,1–11.6) and low level of consciousness (OR 3.6, 95% CI 2.1–9.2) are forth independent predictors of mortality.

Conclusion: The risks of PE are multiple. Although our model requires further validation it may be used as simple and fast method for identifying young patient with poor prognosis PE and treatment with anticoagulants.

P2037 Severe airway response associated with anaphylactic shock in allergic Brown Norway rats

Grégoire Barthel1,2, Bruno Demoulin1, Chantal Montémont1, Feng Zheng2, Julien Davidson2, François Marchal1, Mertes Paul-Michel2,3. Pneumology, Saarland University Hospital, Homburg/Saar, Germany

Aim: Asthmatic, tracheostomized, paralysed and mechanically ventilated ovalbumin-sensitized male Brown Norway rats were randomly allocated to inhaled ovalbumin (OV A) (n=11) or vehicle (n=7). The respiratory resistance (Rrs) and work of breathing (WOB) were recorded during ascending OV A infusions (15 min) from 28.5 IPa.s/L to 140.9 IPa.s/L, p < 0.003). The control group showed little change after vehicle injection.

Methods: Severe airway obstruction occurs with anaphylactic shock in allergic Brown-Norway rats. The associated decrease in Xrs indicates an increase in apparent respiratory elastance (e.g. lung vascular engorgement or pulmonary oedema) and inhomogeneity of mechanical time constants within the lung from heterogeneous bronchoconstriction. Data from this animal model emphasize the significance of respiratory abnormalities in humans during anaphylactic shock.

P2038 Follow-up and educational results of bed head lift in intensive care unit

Suat Solntaz, Raizye Sanzar, Necla Ornek, Roya Evin, Ozlem Moçin, Cinçey Saltürk, Sema Rani Kutlu, Zehra Zekeriya Karakut. Respiratory Intensive Care Unit, Suryeyapasa Chest Diseases and Thoracic Surgery Training and Research Hospital, Istanbul, Turkey

Objective: Lifting head of bed is simplest and most important way to prevent aspiration pneumonia in intensive care unit (ICU). In our study we investigated contribution of reminding this application.

Method: Prospective study was done in 22 bed intensive care unit (ICU) between December 2010-January 2011. None of the staff other than researchers were aware of this observational study. Every day during December 2010 at 8.00 a.m and 5.00 p.m 22 ICU bed head position were recorded whether their heads were 30-45 degrees elevated or straight. During January 2011, nurses responsible for beds were told to lift bed head positions and bed head positions were recorded again. Infection nurse noted aspiration or ventilator associated pneumonia (VAP) cases every two months. Values were summarized with descriptive method.

Results: In December 2010, 1278 in January 2011, 1283 bed head positions were recorded. 26 of total 56 (46.4%) records were done in the morning, 30 were done in the evening during December 2010. In January 2011, 24 of total 41 (59.3%) were done in the morning and 17 in the evening. One patient had VAP and died after 12 days in December 2010. In January 2011, 3 VAP 1 aspiration pneumonia were observed and they stayed total 64 days in ICU and one of them was died.

Conclusion: Reminding of lifting bed head positions at certain hours, during shift changes reduce inappropriate bed head position. This method which is used in reducing the risk of VAP and aspiration pneumonia shortens ICU stay, contribute country income, decrease aspiration related mortality.

P2040 Successful use of interventional lung assist device in a patient with near fatal asthma

Camer Lauren, Murphy Stephen. Respiratory Department, Sunderland Royal Hospital, Sunderland, United Kingdom

Interventional lung assist devices (iLa) are pulpless, arterio-venous, extracorporeal lung support devices with a low resistance gas exchange membrane that allows rapid removal of carbon dioxide (CO2) and moderate oxygenation. Currently they are mostly used in acute respiratory distress syndrome and as a bridge to lung transplantation. We successfully used iLa in an near fatal asthmatic patient with hypercapnic respiratory failure refractory to conventional ventilation. A male patient aged 53 years presented with a near fatal exacerbation of asthma. He had a current smoker with co-morbidities including obesity, previous poliomyelitis affecting right leg, stroke and ischaemic heart disease. Despite full medical treatment, endobronchial intubation and invasive mechanical ventilation (IMV) plus a range of intravenous and inhaled medications including intravenous terbutaline, ketamine, adrenaline and inhaled adrenaline and isoflurane he developed persist-ent hypercapnic respiratory failure with PaCO2 > 20. Conventional ventilation strategies were ineffective with poor compliance, high peak airway pressures and prolonged inspiratory times resulting in air trapping and hyperinflation. Therefore an iLa was inserted on day 2. This resulted in enhanced CO2 removal (Pa CO2 down to 44 at Day 7 and 6) and allowed protected lung ventilation at lower pressures with less gas trapping and hyperinflation. The iLa was removed on day 12 with spontaneous breathing on day 19. This could represent a useful future strategy for persistent hypercapnic respiratory failure unresponsive to conventional measures in obstructive diseases such as asthma and COPD.

P2041 Inhalation of activated recombinant factor VII to treat pulmonary hemorrhage in a patient with cystic fibrosis

CONSTANTIN MARCU, ROBERT BALB, ANDREAS GROSCHSCH, CHRISTIAN LENSC, JULIA WOERMER, SEBASTIAN FAENDRICH. Pneumologie, Saarland University Hospital, Homburg/Saar, Germany

Case: The patient (30y o., female) was diagnosed with cystic fibrosis as child. Currently, she was hospitalized with fever and bilateral pulmonary infiltrates. She rapidly deteriorated to respiratory failure with the need of extracorporeal membrane oxygenation (ECMO).

Diffuse pulmonary haemorrhage complicated the course on ECMO. After 2 days of unremitting bleeding with respiratory failure we used rFVIIa as an intervention of last resort. The patient was treated with inhalation of 50 µg/kg rFVIIa in 5 ml sodium chloride via a jet-driven nebulizer, which was repeated after 24 hours. Hemorrhage was visualized bronchoscopically, and its resolution following the treatment was immediate and did not occur again.

Discussion: Factor VII initiates clot formation by its interaction with TF. The FVIIa-TF complex activates factor X. Activated factor X activates prothrombin to thrombin, which converts fibrinogen to fibrin. Tissue factor is expressed in the lung alveoli during inflammation and therefore pulmonary administration of human recombinant activated factor VIIa (rFVIIa) could be a rational treatment option.

Our report indicates the applicability of topical rFVIIa to control unremitting hemorrhage. By limiting inhalation to the target organ, the therapeutic effect could be superior as a result of higher topical concentrations without

Abstract printing supported by G. Chiesi. Visit Chiesi at Stand D.30
systemic exposure. This could also reduce the risk of thrombotic complications reported with systemic administration of rFVIIa as well as clotting in the ECMO membrane.

Conclusion: Intrapulmonary administration of activated recombinant factor VII (rFVIIa) via a jet-driven nebulizer may be an option in pulmonary haemorrhage.

P2042
Enhanced expression of Robo4 ameliorates LPS-induced acute lung injury in mice
Wenjun Wu, Yuanlin Song, Xiaodan Zhu, Xiaocang Fang, Chunxue Bai.
Pulmonary Department, Fudan University, Shanghai, China

The loss of endothelial integrity which causes leak of fluid and proteins into tissues contributes to the disease and death associated with acute lung injury. slit2/Robo4 (an endothelium-specific) signaling promotes vascular stability. The purpose of this study was to evaluate the effect of enhanced expression of Robo4 on LPS-induced acute lung injury. We constructed a recombinant adenoviral vector expressing murine Robo4 (Ad.mRobo4) which were administered intranasally to BALB/c mice. Forty-eight hours later, all the mice were administered a single dose of LPS via i.p. injection to induce acute lung injury. A second cohort of mice was followed for survival for 7 days. Administration of Ad.m Robo4 increased increased the expression of Robo4 in lung tissue, as determined by reverse transcription-polymerase chain reaction, Western blot, and immunohistochemistry. Enhanced expression of Robo4 in lung suppressed the inflammatory reaction to LPS, attenuated the lung pathological changes, significantly reduced vascular permeability and edema in the lung determined by albumin in bronchoalveolar lavage fluid and also improved the survival of mice. Our results demonstrate a novel function manner for slit2/Robo4 signaling. slit2/Robo4 pathway work formerly considered as ligand-dependently, it has now to be considered as a ligand-independent and thus could be an attractive adjuvant in the treatment of acute lung injury.

P2043
Expression of osteopontin in the lung tissue of acute lung injury rats and the influence of osteopontin on TNF-α and IL-10
Wenjun Wang, Xianming Fan.
The Department of Respiratory Medicine, Affiliated Hospital of Luzhou Medical College, Luzhou, Sichuan, China

This work was supported by International cooperation and exchange program of Sichuan science and technology department (NO. 2009HH0032);
Background: Pathogenesis of acute lung injury (ALI) has not been clarified fully, also we don’t know how to improve the prognosis of ALI.
Aims: To investigate the expression of osteopontin (OPN) in the lung tissue of ALI rats and the influence of OPN on the level of TNF-α and IL-10 in serum.
Methods: 56 SD rats were randomly divided into control group (24 rats), ALI group (24 rats) and intervention group (24 rats). 8 rats in each group were examined at 2, 4 and 8 h. ALI was induced by LPS injection via caudal vein in ALI and intervention groups, at the same time, rats in intervention group were also injected with anti-OPN antibody. Wet/Dry Weight (W/D), pathological changes of the lung tissue and ALI score were detected. The level of TNF-α and IL-10 in serum and the expression of OPN in homogenate of lung tissue were detected.
Results: W/D, ALI score and the level of TNF-α in ALI group at 2.4 and 8 h were higher than those in control group and intervention group at the same time point (p<0.01). The level of IL-10 in ALI group at 2.4 and 8 h was higher than that in control group and intervention group at the same time point (p<0.05). Compared with control group, expression of OPN in ALI and intervention groups at 2.4 and 8 h was higher (p<0.01).
Conclusions: The expression of OPN in lung tissue of ALI rats induced by LPS was increased, and OPN could aggravate lung injury, which might be related to up-regulating expression of TNF-α and down-regulating expression of IL-10.

P2044
The role of osteopontin in the pulmonary fibrosis caused by acute lung injury induced by lipopolysaccharide in rats
Wenjun Wang, Xianming Fan.
The Department of Respiratory Medicine, Affiliated Hospital of Luzhou Medical College, Luzhou, Sichuan, China

This work was supported by International cooperation and exchange program of Sichuan science and technology department (NO. 2009HH0032);
Background: In the later stage of acute lung injury (ALI), lung fibrosis is a common sequel. It results in damage of lung function. But we know little about it.
Aim: To investigate the role of osteopontin (OPN) in the pulmonary fibrosis caused by lipopolysaccharide (LPS)-induced ALI.
Methods: 120 rats were randomly divided into control group (n=40), ALI group (n=40), and intervention group (n=40). ALI was induced by intraperitoneal injection with LPS on day 0,1 and 2 in control group. Also, the rats in intervention group were treated with Anti-OPN antibody by intraperitoneal injection after LPS injection. Then 10 rats in each group were randomly sacrificed on the 7th, 14th and 28th day. Histological examination and the expression of OPN in the lung tissue were determined. Hydroxyproline and the mRNA levels of type I and II collagen in the lung tissue were measured.

Results: Compared with control group, the expression of OPN in ALI group was remarkably higher on 7th,14th and 28th day respectively (p<0.01). The extent of lung fibrosis, the expression of hydroxyproline and the levels of type I and II collagen mRNA in intervention group and ALI group were higher than those in control group on day 7,14 and 28 respectively (p<0.01), but they were lower in intervention group than those in ALI group (p<0.01).

P2045
A prospective evaluation of different anthropometric height estimation formula
Solene Guinard1, Zoe Chiche2, Jerome Martin1, Erwan L’Her2.
1Medical ICU, CHU, Brest, France; 2Emergency Department, CHU, Brest, France

This is now accepted that protective ventilation with low (fml/kg of predictive body weight) tidal volume benefits to ARDS patients. To determine predictive body weight, the gender and height of patients need to be known. However, in the ED or in the ICU, patients are often unable to provide their height and tape measurement is usually not valid. The purpose of this study is to evaluate different easy and reproducible anthropometric indicators, which could be correlated to the exact patients’ height.
Several indicators have been prospectively evaluated on 60 healthy volunteers and correlated to their real height. Height estimation formula are based on simple mathematical coefficient (r) was calculated by linear regression as compared to exact measured height.
See table 1. Among 16 anthropometric different height estimation formulae, the last two formulas (ulma’s length and tibia’s length) were best correlated to the real volunteers’ height.

Table 1. Correlation between real height and anthropometric indicators (we have only colligated each limb’s best formula in this table enhance readability)

<table>
<thead>
<tr>
<th>Anthropometric indicator</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID card</td>
<td>r=0.963</td>
<td></td>
</tr>
<tr>
<td>Hand length</td>
<td>r=0.794</td>
<td></td>
</tr>
<tr>
<td>3rd phalanx index length</td>
<td>r=0.730</td>
<td></td>
</tr>
<tr>
<td>Ulma length</td>
<td>r=0.830</td>
<td></td>
</tr>
<tr>
<td>Tibia length</td>
<td>r=0.850</td>
<td></td>
</tr>
<tr>
<td>Simplified Chumlea</td>
<td>r=0.867</td>
<td></td>
</tr>
<tr>
<td>Right foot length</td>
<td>r=0.918</td>
<td></td>
</tr>
<tr>
<td>Simplified Chumlea is a specific way to measure tibia’s length in supine position.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion: Several simple limb measurements can accurately predict exact patients’ height. These estimations have now to be tested on ICU patients, in order to evaluate their bedside feasibility and usefulness.

P2046
“Normotension” on admission to the emergency department affects outcome of patients with acute cardiogenic pulmonary edema (ACPE)
Valentina Rossi1, Chiara Travissoro2, Federico Piffer1, Stefano Alberti3, Caterina Bonino1, Valter Monzani2, Antonio Vora3, Daniele Camisa3, Simona Fusco3, Marco Barchetti2, Federica Molinaro3, Giuseppina Petrella3, Roberto Cossutini2, Anna Maria Brambilla2. 1Respiratory Medicine Department, 2Surgical Specialties, 3Cardiology, Fondazione IRCCS Policlinico, Milan, Italy; 4Emergency Department, Fondazione IRCCS Ospedale Maggiore Policlinico, Milan, Italy; 5Emergency Department, Fondazione IRCCS Ospedale Maggiore Policlinico, Milan, Italy; 6Respiratory Medicine Department, San Gerardo Hospital, Monza, Milan, Italy; 7Emergency Department, Humanitas Hospital, Milan, Italy; 8Emergency Department, Melegnano Hospital, Melegnano, Milan, Italy; 9Emergency Department, Fucecchi Hospital, Fucecchi, Italy; 10Emergency Department, Sassuolo Hospital, Sassuolo, Italy; 11Emergency Department, Gradiseco Hospital, Turin, Italy; 12Emergency Department, San Benedetto del Tronto Hospital, San Benedetto del Tronto, Italy

Introduction: ACPE is a common cause of admission to the Emergency Department (ED). We previously retrospectively studied the effect on the outcome of blood pressure (BP) on admission.

Aim: To prospectively confirm the relationship between “normotension” on admission and worse outcome in ACPE patients.
Methods: Prospective, observational, multicentric, web-based study on patients admitted to the ED with ACPE. Data were collected from 13 Italian EDs. Normotension was defined as Mean Arterial BP (MAP)≤90 mmHg. Patients with MAP>95 mmHg on admission were excluded.

Results: From May 2009 to October 2010,460 patients were enrolled. Nine hypotensive patients were excluded. Mean age was 80 years (SD±10 years), 245 males (54%). “Normotensive” patients were 41% (185/451). Clinical and laboratory data are showed in table 1. Overall, in-hospital mortality was 8% (34/451). In-hospital mortality in normotensive patients was significantly higher than in hypertensive patients, 12% (22/185) vs 4% (12/266) (p<0.01). We also found that the risk factor “normotension” maintained its statistical significance in a multivariable analysis when compared with the other significant risk factors (Age, PaCO2 and Hemoglobin) detected in our population in the univariate analysis.

Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30
Table 1. Baseline characteristic of the two populations

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Hypertension</th>
<th>Normotension</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.26±0.12</td>
<td>7.33±0.12</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>PaCO2, mmHg</td>
<td>53±17</td>
<td>47±15</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>PiO2/FiO2 ratio</td>
<td>210±90</td>
<td>190±82</td>
<td>0.02</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>112±20</td>
<td>103±26</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>34±7</td>
<td>31±7</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Lactate, mmol/L</td>
<td>3.04±2.08</td>
<td>2.90±2.61</td>
<td>0.59</td>
</tr>
</tbody>
</table>

**Conclusion:** We prospectively confirmed that “normotension” on presentation is a significant and independent risk factor for mortality in patients with ACPE.

**P2047**

A metabonomic approach to prognostic evaluation of ALI by high-resolution nuclear magnetic resonance (HR NMR) spectroscopy

Xun Wang¹, Wenxue Chen², Xiaojing An¹, Dong Yang¹, Fener Chen², Chunxue Bai¹.¹Department of Pulmonary Medicine, Zhongshan Hospital, Fudan University, Shanghai, China; ²Fudan- DSM Joint Laboratory, Department of Chemistry, Fudan University, Shanghai, China

**Purpose:** Metabonomics is a well-developed platform for studying systems biology and clinical diagnosis. In this study, we investigated a metabonomic approach to prognostic evaluation of LPS-induced ALI by HR NMR spectroscopy.

**Methods:** The mice model of ALI was established by intratracheal instillation of LPS (5mg/kg) for 4 hours with the saline in control mice. The mice of dexamethasone (DEX) treatment group were intraperitoneally treated with DEX while intratracheal instillation of LPS. HR ¹H NMR spectroscopy in combination with pattern recognition methods was applied to study 15 lung tissues extract samples of mice.

**Results:** The lung injury score were significantly increased in ALI mice compared to control group and DEX treatment markedly decreased the lung injury score. The first principal component (PC1) shows a good separation between the ALI group and control (or DEX treatment) groups. The metabolites showed clear differentiation between groups mainly included valine (Val, δ 1.06), lactate (Lac, δ 1.33), acetate (Ace, δ 1.91), creatine (Cre, δ 3.06). In addition, these samples in the ALI group clearly located out of other groups, and four of five samples in the DEX treatment group fell in the range of the control group.

**Conclusions:** Our study, for the first time, provides evidence for a metabonomic approach to prognostic evaluation of ALI treated with DEX by HR NMR spectroscopy.