271. Assessment of severity and predictors of outcomes in community-acquired pneumonia

P2476
CURB65 versus PSI in assessing the severity of CAP of elderly patients

Background: PSI and CURB65 are two of the most widely used scales for predicting mortality related to CAP. However, CURB65 accuracy to predict mortality has not been validated in elderly population.

Aim: To analyze the predictive mortality value of CURB65 scale versus PSI score in patients with CAP older than 65 years old.

Methods: A 12 months prospective multicenter and longitudinal study was performed in several hospitals of a Spanish mediterranean area (Comunidad Valenciana). We included patients over 65 with CAP diagnosis. We analyzed mortality related factors (comorbidities, clinical, radiological and laboratory findings, complications) and mortality risk related to PSI or CURB65 scores. Statistical analysis included Chi Square with significance \( p < 0.05 \).

Results: 750 patients were included, with mean age of 76.7 ± 7.5 years, 63.9% of them were men. 5.1% died. In our cohort, mortality rate attending PSI score or CURB65 was consistent as reported series (Table 1). However, CURB65 classified as low risk a higher percentage of patients considered by PSI score as moderate-severe risk \( p < 0.001 \) (Table 2).

Table 1

<table>
<thead>
<tr>
<th>Cohort patients (%)</th>
<th>PSI (%)</th>
<th>Cohort patients (%)</th>
<th>CURB65 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I – 0.1</td>
<td>1</td>
<td>2.7</td>
<td>2.1</td>
</tr>
<tr>
<td>II 0</td>
<td>0.6</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>III 1.2</td>
<td>0.9–2.8</td>
<td>3</td>
<td>16.2</td>
</tr>
<tr>
<td>IV 6.5</td>
<td>8.2–9.3</td>
<td>4</td>
<td>26.7</td>
</tr>
<tr>
<td>V 16.8</td>
<td>27–29.2</td>
<td>5</td>
<td>50</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>CURB-65</th>
<th>PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk (I–III), %</td>
<td>Moderate risk (IV), %</td>
</tr>
<tr>
<td>Low risk (0–1)%</td>
<td>85.3</td>
</tr>
<tr>
<td>Moderate risk (2%)</td>
<td>14.7</td>
</tr>
<tr>
<td>Severe risk (3–5)%</td>
<td>0</td>
</tr>
</tbody>
</table>

Conclusions: Although mortality rate in our cohort is closed to reported data, CURB65 in elderly patients with CAP underestimate the severity of CAP compared to PSI scores.
In pneumonia, pathogen-host interaction may evoke pulmonary endothelial permeability despite efficient antimicrobial therapy, resulting in life-threatening lung failure. Angiopoietin (Ang)-1 mediated Tie2-activation reduces and Ang-2 expression in murine lung tissue following infection with S. pneumoniae. Immunohistochemistry staining of human lung tissue revealed that Ang-2 expression in bronchoalveolar lavage and lung permeability in pneumonia patients. When mice were pretreated with siRNA against Ang-2, reduced permeability in lungs of siRNA-treated mice was increased compared to lungs of control mice. These results suggest a central role of the Ang-/Tie2-system in pneumonia-evoked inflammation and permeability, and provide a new therapeutic perspective for severe pneumonia.

P2478 Differences between local and systemic inflammatory response in patients with community acquired pneumonia (CAP)

Leitza D’Albore1,2, Francesco Bosisio3, Anna Maria Brambilla3,2, Jose Bordon4,5, Letizia Corinna Morlacchi1, Stefano Aliberti2, Sonia Seghezzi3, Valeria Giunta1, Norbert Suttorp6, Martin Witzenrath1, The CAPNETZ Study Group 6.

Background: CRB-65, a useful tool to predict community-acquired pneumonia (CAP) outcome in hospitals, has been recommended for use in primary care. CRB-65 scores are calculated by assigning one point for each of: the presence of Confusion, Respiratory rate ≥ 30 per minute, Blood pressure systolic < 90 mm Hg or diastolic ≤ 60 mm Hg, and age ≥ 65 years.

Method: Clinicians prospectively recorded clinical features on a case registration form. Patients had a chest X-ray within 7 days after inclusion. A notes review was performed. We used a two-level logistic regression model (with patients nested within clinicians) to assess the association between a CRB-65 score ≥ 1 and mortality and a combination of re-consultation and hospital admission, and tested for interaction to assess differences in these outcome between patients with and without CAP.

Results: None of the 3112 included patients died due to the LRTI. Complete data were available in 262(84%) patients. Of these, 866(33%) had a CRB-65 score ≥ 1.08(4%) had CAP and 488(19%) were re-consulted or were admitted to hospital. Both a CRB-65 score ≥ 1 and CAP were associated with more re-consultations or hospital admissions (odds ratio (95%CI): 1.32 (1.06–1.64) and 2.18 (1.13–4.21), respectively). The interaction term was not significant (1.17 (0.57–2.41)).

Conclusion: In patients presenting to primary care with LRTI, low mortality and low prevalence of CAP limit the usefulness of CRB-65. Nevertheless, a CRB-65 score ≥ 1 is associated with a significant increase in re-consultations and hospital admissions.

P2479 Validity of CRB-65 in LRTI in primary care: A prospective study in 12 European countries

Samuel Coenen1,2,3, Theo Verheij3, Greet Leven2, Christine Lammens2, Norbert Suttorp6, Martin Witzenrath1, The CAPNETZ Study Group 6.

Background: CRB-65 scores are calculated by assigning one point for each of: the presence of Confusion, Respiratory rate ≥ 30 per minute, Blood pressure systolic < 90 mm Hg or diastolic ≤ 60 mm Hg, and age ≥ 65 years.

Aim: To assess the validity of the CRB-65 score to predict poor prognosis in adults presenting to primary care with lower respiratory tract infections (LRTI).

Methods: Clinicians prospectively recorded clinical features on a case registration form. Patients had a chest X-ray within 7 days after inclusion. A notes review was performed. We used a two-level logistic regression model (with patients nested within clinicians) to assess the association between a CRB-65 score ≥ 1 and mortality and a combination of re-consultation and hospital admission, and tested for interaction to assess differences in these outcome between patients with and without CAP.

Results: None of the 3112 included patients died due to the LRTI. Complete data were available in 262(84%) patients. Of these, 866(33%) had a CRB-65 score ≥ 1.08(4%) had CAP and 488(19%) were re-consulted or were admitted to hospital. Both a CRB-65 score ≥ 1 and CAP were associated with more re-consultations or hospital admissions (odds ratio (95%CI): 1.32 (1.06–1.64) and 2.18 (1.13–4.21), respectively). The interaction term was not significant (1.17 (0.57–2.41)).

Conclusion: In patients presenting to primary care with LRTI, low mortality and low prevalence of CAP limit the usefulness of CRB-65. Nevertheless, a CRB-65 score ≥ 1 is associated with a significant increase in re-consultations and hospital admissions.

P2480 Vascular events following hospitalisation for community acquired pneumonia

Ahna R. Akram1,2, James D. Chalmers1, Aran Singanayagam3, Gillian B. Fleming4, Joanne K. Taylor2, Duncan Mills2, Adam T. Hill1.

Background: CRB-65, a useful tool to predict community-acquired pneumonia (CAP) outcome in hospitals, has been recommended for use in primary care. CRB-65 scores are calculated by assigning one point for each of: the presence of Confusion, Respiratory rate ≥ 30 per minute, Blood pressure systolic < 90 mm Hg or diastolic ≤ 60 mm Hg, and age ≥ 65 years.

Objective: To determine if patients with community acquired pneumonia (CAP) are at increased risk of vascular events following discharge.

Methods: Patients enrolled in a prospective study for CAP who survived to hospital discharge were followed up at 1 year. A cohort matched to age, sex, co-morbidities and vascular risk factors were included and the incidence of vascular events and mortality were recorded.

Results: 1321 patients were included (50.3% male, median age 65 (IQR 48-77), 23.7% had a prior history cardiovascular events) with 1321 matched controls. 12.3% of CAP patients died after discharge by 1 year, with 28.9% attributed to cardiovascular events or stroke. The incidence increased with age. 156 patients required hospitalisation within 1 year for one or more vascular event; myocardial infarction (MI) n=74, cardiac failure n=61, for cardiac arrhythmia n=31 and stroke n=12. Of the 74 patients with MI, there was a significantly increased incidence when compared to the control group ( fig1).

Conclusion: In patients presenting to primary care with LRTI, low mortality and low prevalence of CAP limit the usefulness of CRB-65. Nevertheless, a CRB-65 score ≥ 1 is associated with a significant increase in re-consultations and hospital admissions.

Cytokine, pg/mL

<table>
<thead>
<tr>
<th>Cytokine</th>
<th>EBC</th>
<th>Serum</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL2</td>
<td>0.46±0.48</td>
<td>1.28±0.90</td>
</tr>
<tr>
<td>IL4</td>
<td>1.69±0.71</td>
<td>4.13±0.64</td>
</tr>
<tr>
<td>IL6</td>
<td>0.01±0.02</td>
<td>108.33±150.03</td>
</tr>
<tr>
<td>IL8</td>
<td>0.34±0.04</td>
<td>128.80±340.03</td>
</tr>
<tr>
<td>IL10</td>
<td>0.02±0.16</td>
<td>1.49±1.59</td>
</tr>
<tr>
<td>IFNγ</td>
<td>0.02±0.07</td>
<td>12.79±16.86</td>
</tr>
<tr>
<td>TNFα</td>
<td>0.10±0.29</td>
<td>13.30±26.82</td>
</tr>
<tr>
<td>IL6</td>
<td>0.07±0.13</td>
<td>0.76±0.13</td>
</tr>
<tr>
<td>IL16</td>
<td>0.21±0.33</td>
<td>1.20±0.85</td>
</tr>
</tbody>
</table>

Pro-inflammatory interleukins were increased in patients undergoing mechanical ventilation on admission in comparison to the rest of the population in both serum (IL2 0.07±0.13 vs. 0.11±0.12, respectively, p<0.007) and EBC (IL6 0.31±0.28 vs. 0.08±0.06, respectively, p=0.001). These findings may help to understand the decompartmentalization of the inflammatory response, which takes place since the very early stages of the infection in hospitalized patients with CAP.
Using multivariate logistic regression analysis, major predictors of cardiovascular deaths following CAP were age (AOR 1.04 95%CI (1.02-1.07), p<0.001), prior history of cardiovascular events (2.70 (1.47-4.96), p<0.001), ICU admission during hospitalization (1.87 (1.04-3.38), p=0.04) and anemia (0.98 (0.97-0.99), p=0.0007).

Conclusion: Hospitalisation for CAP is associated with an increased risk of cardiovascular events and mortality at 1 year.

P2483
Severe complicated pneumococcal pneumonia in young adults
Sebastien Ellis, Matthew Harris, Suzanne Shuttlesworth, Chris Taylor, Aye Aye Lwin. Respiratory, Southampton General Hospital, Southampton, Hampshire, United Kingdom

Background: Pneumococcal pneumonia causes parapneumonic effusion (PPE) in 40%-57%. Severity can be influenced by both host characteristics e.g. co-morbidity, age and vaccination status and, bacterial factors.

Aims and objectives: To study the relationship between host characteristics (age, co-morbidity and previous vaccination) and disease severity in adults admitted with pneumococcal pneumonia.

Methods: A cohort of 21 inpatients with pneumococcal pneumonia between December 2010 to January 2011 were retrospectively studied using electronic patient records, medical notes and the PACS system. Uncomplicated PPE (UPPE) was defined as pleural fluid pH >7.2, complicated PPE (CPPE) as pH <7.2 and empyema as visible purulent fluid.

Results: 21 patients were admitted with pneumococcal pneumonia, 8 male and 13 female, median age 48 years (range 18-76). 9 (43%) had no associated co-morbidity, of which 7 were <65 years. 6/9 developed pleural effusion (1 UPPE, 4 CPPE and 1 empyema), 4 required chest drainage, none of these 4 were vaccinated. All patients who developed pleural effusion or empyema, 9/21 (38%), had an admission CRP >100 (range 101-500) and albumin <35 (range 16-32).

7/21 (33%) patients were admitted to the intensive care unit (ICU). 47% had no associated co-morbidities, median age was 33 (range 29-48) and all 4 patients were not vaccinated.

Conclusion: Our study highlights that along with high risk groups, young un-vaccinated adults with no co-morbidity are also at risk of developing severe pneumococcal pneumonia with complicating pleural effusion or empyema.

P2484
Efficacy of pneumococcal urinary antigen testing in the clinical presentation and outcome of pneumococcal bacteraemic community acquired pneumonia
Luis Alberto Ruiz, Maria Alfonso, Ainhoa Gomez, Sandra Pedrero, Nuria Marina, Marta Inchausti, Ixartxe Seijas, Carmen Jaca, Rafael Zalacain. Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain Pneumology, Cruces Hospital, Barakaldo, Spain

Aim: To describe the clinical characteristics and outcome of a group of patients diagnosed with pneumococcal bacteraemic community acquired pneumonia (PB-CAP) depending on the results of pneumococcal urinary antigen testing (PUAT).

Methods: We have studied all patients admitted to the Respiratory Service and/or ICU of our hospital for 10 years. Patients have been divided into two groups according to the results of PUAT (BINAX®). Exclusion criteria included (1) iacquired immune deficiency syndrome, other immunodeficiencies or under immunosuppressive treatment; (2) health care associated pneumonia.

Results: We have studied 250 patients, 233 of them underwent UPATD.

Conclusions: 1. PUAT positivity was associated with an early antibiotic prescription at the emergency department at admission. 2. Patients with positive PUAT were more frequently admitted to ICU. They also had a higher mean hospital stay but there were no significant differences regarding severity according to PSI and CURB 65 score. Patients under negative PUATD had a lower but no significant mortality rate.

P2485
Is pneumonia in elderly an enigma: A study from a multispeciality hospital in rural India
B N B Mahaveera Prasad, C A.Tukaram. Medicine, Military Hospital Wellington, Wellington Barracks, The Nilgiris District, Tamilnadu, India

Aim: To study the manifestations and outcome of pneumonia in elderly from a rural background in India.
P2486

Prospective comparison between chest ultrasound and X-ray in two planes in patients with suspected community-acquired pneumonia. Intermediate results (02/2011) of a prospective multicenter DEGUM-/ÖGUM-study

Aim: The aim of the prospective study is to define the sensitivity of chest ultrasound (US) in diagnosing and follow-up of community-acquired pneumonia (CAP).

Patients and methods: US was performed in 326 patients (age 18-95 years; 211 males, 115 females) with suspected CAP. The results were first compared to X-ray in two planes. In case of positive US and negative or inconclusive X-ray a low-dose computed tomography (CT) was performed. Sonographic characterisation of pneumonia was carried out at day 0, between day 5-8 and between day 13-16.

Results: US / X-ray / CT / Number of patients: positive / inconclusive / positive / n=10 negative / inconclusive / negative / n=8 positive / positive / not done / n=16 positive / positive / positive / n=10 positive / negative / not done / n=13 positive / negative / negative / n=11 positive / inconclusive / negative / n=2 negative / positive / not done / n=13 negative / inconclusive / inconclusive / n=2

*US was inconclusive in 5 patients, which had to be evaluated according to the study protocol.

Conclusions: The intermediate results suggest a high sensitivity and specificity of US in diagnosing and follow-up CAP. The final results will be available in September 2011.

P2487

Does a clinical score helps in the management of hospital-acquired pneumonia in nonventilated patients?

Bertrand Here, Zhivane Gaetetc Service de Pneumologie, Centre de Forcilles, Fénolles Attilly, France

Hospital-acquired pneumonia (HAP) is increasingly frequent in nonventilated (NV) patients. Because of the difficulty of obtaining invasive diagnostical procedures outside an intensive care unit (ICU), a clinical score could be useful for the management of NV patients. We tested the diagnostic accuracy of a score (SCAP) in nonventilated patients with clinical suspicion of HAP, obtained by combining the following clinical parameters (minimal value = 0, maximal value = 3): non cancerous comorbid condition (0=absent, 1=present); solid cancer (0=absent, 1=present); prior antibiotics (0=yes, 1=no); radiographic infiltrate (0=no or diffuse, 2=localised); NV ICU (0=0 or ward (0) patient. The score was calculated before a protected specimen brush was obtained by bronchoscopy in all cases and its value was compared with bacteriological results to assess sensitivity (Se) and specificity (Sp). HAP was confirmed in 45 (54.6%) of 84 suspected episodes disclosing in major part nonfermenting (35.6%) and enteric (42.2%) gram-negative bacilli, staphylococcus (26.2%) and streptococcus (26.2%) spp. Polymicrobial HAP was present in 37.8% of episodes. The mean ± SD SCAPNOFOR value was 5.3±1.6 and 4.3±1.5, respectively, for the 45 HAP episodes and the 39 non chambered HAP episodes (p=0.003). Se and Sp were respectively at SCAPNOFOR value more than 5, 53% and 79%, and more than 0.2, 27% and 95%. We conclude that SCAPNOFOR can help to classify approximately 50% of patients with definitive HAP according to the chosen cut-off. These data support the need for establishing an etiologic diagnosis in suspected HAP in NV patients.

P2488

Comparison of four systems for assessing severity of community acquired pneumonia

Tiago Abreu, Telma Lopes, Marisa Anciães, Dalila Ferreira, Sara Salgado, Gil Duarte. Servico de Pneumologia II, Centro Hospitalar Lisboa Norte - Hospital Pulido Valente, Lisboa, Portugal

Introduction: The use of severity scores for community acquired pneumonia (CAP) is recommended by many clinical guidelines. However, debate about the preferred system is ongoing.

Objective: To compare the performance of 4 systems to identify severe CAP.

Material and methods: We reviewed 176 patients diagnosed with CAP admitted in a Pneumology ward, from January 2007 to July 2009. We compared 4 systems: Pneumonia Severity Index (PSI), CURB65, modified American Thoracic Society criteria for severe pneumonia (ATSm) and SCAP score.

We divided the patients in 2 groups: low/intermediate risk and high risk, the later defined as CURB65 ≥ 3, PSI classes IV/V, ATSm ≥ 1 major criteria or ≥ 3 minor criteria and SCAP score ≥ 1 major criteria or ≥ 2 minor criteria.

We evaluated the performance of these systems in both groups. We compared the patient adverse outcomes, defined as mortality and need for ICU admission, based on sensitivity, specificity and area under the ROC curve (AUC).

Results: Specificity and sensitivity (95% confidence interval in brackets) were, respectively: CURB65 = [27.3% - 97.5%] and 91.5% [86.3 - 94.9%]; PSI = 81.8% [52.3 - 94.9] and 55.8% [48.1 - 63.1]; ATSm = 54.6% [28.0 - 78.7] and 95.8% [91.5 - 97.9]; SCAP = 81.8% [52.3 - 94.9] and 70.9% [63.6 - 73.1].

AUC was: CURB65 = 0.594, PSI = 0.688, ATSm = 0.752 and SCAP = 0.764.

Conclusions: PSI and SCAP were the most sensitive systems, while CURB65 and ATSm were the most specific. Although the best discriminative capacity was found in CAP it presented many false positives. Probably, a good approach would be to rely on clinical judgment, triage of high risk patients with PSI or SCAP and use of ATSm to determine need for ICU admission.

P2489

Value of serum procalcitonin levels in the differential diagnosis of pneumonia and pulmonary embolism

Aysel Yeter, Gungor Camsular, Gulcan Utkan, Aygun Gur, Nured Dilak Beken, Mehmet Bayram. Pulmonology, Yeditepe Teaching Hospital for Chest Diseases and Thoracic Surgery, Istanbul, Turkey

Objective: Procalcitonin (PCT), a precursor hormone of calcitonin is secreted from the thyroid. It was increased in blood in bacterial infections. The aim of the study was to determine the serum procalcitonin levels in differentiating community-acquired pneumonia (CAP) from pulmonary embolism (PE).

Methods and patients: Fifty-eight patients with ≥1 of the following symptoms: fever, cough, dyspnoea, haemoptysis, sputum, chest pain on chest X-ray were included to the study. Thirty patients were diagnosed as CAP and 27 patients as PE. One patient with suspected PE was excluded because of negative pulmonary CT angiography. Serum PCT values of all patients were measured and recorded before treatment was started.

Results: Median values of PCT were in patients with PE 0.05 ng/ml in patients with CAP 1.38 ng/ml. The area under ROC curve was 0.83. With an optimal cut-off value 0.27 ng/ml for differentiating PE and CAP, sensitivity was 76.4%, specificity 85.2%, negative predictive value 76.7%, positive predictive value 85.2%, and accuracy 80.7%.

Conclusion: Serum PCT has a high diagnostic value in the differential diagnosis of PE and CAP. Serum PCT can be used in differentiating CAP and PE as an inflammatory marker.

P2490

The value of exhaled breath condensate “pH” to evaluate the severity of disease and the response to treatment in patients with community acquired pneumonia

Deniz Arkol, Canturk Tasci, Metin Orkan, Hayati Bilgic, Cengizhan Aciçek, Ismail Kurt.

1 Chest Disease, Chest Disease, Ankara, Turkey; 2 Public Health, Public Health, Ankara, Turkey; 3 Biochemistry, Biochemistry, Ankara, Turkey

Introduction: There is no practical procedure in defining severity of community acquired pneumonia (CAP) and evaluation of response to treatment. Recently “exhaled breath condensate pH” measurement as a noninvasive, reproducible and easily performed method is in use to diagnose some airway and pulmonary diseases. We planned this study to measure the severity and response to treatment in patients with community acquired pneumonia by using this method.

453s

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**P2491**

**Cost and outcomes of pneumococcal community-acquired pneumonia among adults in the United Kingdom**

Apostolos Charos, Paul Balmer. Specialty Care, Pfizer, Walton Oaks, United Kingdom

**Background:** Community-acquired pneumonia (CAP) is associated with substantial morbidity and mortality among adults in the United Kingdom (UK). *S. pneumoniae* is the most common cause of CAP.

**Aims and objectives:** The study objective was to evaluate the clinical and economic burden of pneumococcal CAP among adults in the UK.

**Methods:** A cost-outcomes model was developed to estimate the inpatient costs and outcomes associated with pneumococcal CAP among adults above 50 years old in UK, costing more than £122 million.

**Results:** It was estimated that there were 58,604 annual hospital admissions for pneumonia for adults above 50 years old.

**Conclusions:** The study results claim that EBC pH may be used in assessing the severity and radiological extensiveness and in monitoring the treatment.

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**P2492**

**Relationship between the presence of hypoxemia and the inflammatory response measured by C-reactive protein in bacteremic pneumococcal pneumonia**

Francisco Sanz1, Concepción Gimeno2, Tomás Llorente1, Nuria Tormo2, Marisa Briston1, Estrella Fernández1, Angela Cervera2, María Carmen Aguirre1, Eusebi Chiner6, José Blanquer7.

**Background:** Hypoxemia is a known predictor of poor outcome in patients with pneumonia. Clinical severity scoring systems (e.g., the CURB-65 score) are used for initial triage and patient management. However, their accuracy is limited.

**Aims:** To evaluate whether the presence of hypoxemia could influence the systemic inflammatory response (C-reactive protein, CRP) in bacteremic pneumococcal pneumonia.

**Material and methods:** We analyzed the relationship between the presence of hypoxemia (PaO2/FiO2 < 300) and other clinical parameters and systemic inflammatory response measured by PCR in a series of bacteremic pneumococcal pneumonia. We performed a multiple linear regression analysis considering CRP levels as a dependent variable and other physiological parameters and comorbidities as independent variables.

**Results:** We analyzed 297 cases of bacteremic pneumococcal pneumonia. The mean PaO2/FiO2 was 277.7 (IQR: 233.3-323.8), and 44.8% (133) showed PaO2/FiO2 < 300. CRP mean was 27.6 mg/dl (IQR: 15.7-39.2). Linear regression analysis showed that pneumonia severity (PSI score) (regression coefficient: -0.21, p = 0.047), body temperature (regression coefficient: -0.21, p = 0.037) and the presence of some immunosuppressant factor (regression coefficient: -0.29, p = 0.002) were independently associated with CRP levels. The model showed a correlation of 0.353 with r² of 0.125.

**Conclusions:** In our series, we observed that the degree of hypoxemia, the severity of pneumonia and the presence of some immunosuppressant factors correlates with the systemic inflammatory response measured by CRP in bacteremic pneumococcal pneumonia.

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**P2493**

**Usefulness of serum cortisol in assessment for the severity of community-acquired pneumonia**

Min-Su Kim. Respiratory Medicine, Changwon Fatima Hospital, Changwon, Republic of Korea

**Background:** High cortisol levels are frequently observed in patients with severe infections and are of prognostic value in sepsis. The aim of this study was to evaluate the clinical usefulness of serum cortisol in assessment for the severity of community-acquired pneumonia (CAP).

**Materials and methods:** This study analyzed the results of 52 CAP patients admitted in Changwon Fatima Hospital between July 2008 to May 2010. Total serum cortisol, infection markers such as C-reactive protein (CRP), procalcitonin (PCT) and CURB (Confusion, Uremia, Respiratory, Blood pressure, -65) were examined retrospectively.

**Results:** In clinically unstable subjects on admission day 4, baseline serum cortisol, CURB-65, and CRP were elevated significantly compared to those of stable subjects.

**Conclusion:** These findings suggest that measurement of serum cortisol in early stage may provide helpful information in the assessment of CAP severity.

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**P2494**

**Community acquired pneumonia in a Greek hospital: Adherence of Greek doctors to the IDSA/ATS and national guidelines**

Charalampios Triantaphyllidis1, Vasileios Kapdorfisis1, Georgios Papatasi2, Dora Orlandou1, Maria Apostolidou1, Ioanna Nikolopoulou2, Angelos Pefanis3.

13rd Department of Internal Medicine, National and Kapodistrian University of Athens, Medical School, “Sotira” General Regional Hospital for Thoracic Diseases, Athens, Greece; 2Centre for Respiratory Failure and Intensive Care Unit, “Sotira” General Hospital for Thoracic Diseases, Athens, Greece

**Background:** The adherence of Greek physicians to practice guidelines for CAP and its impact on cost and patients’ outcome remain unknown.

**Material & methods:** We performed a prospective observational study in 252 immunocompetent hospitalized patients so as to investigate whether the 2007 IDSA/ATS and the Greek guidelines for CAP are followed by chest physicians in “Sotira” General hospital in Athens, Greece. We: a) assessed whether the decision of hospital admission was correct or not and b) evaluated whether the treatment regimen was in accordance to guidelines. Fine score (PSI) was applied by the authors to determine the severity of CAP.

**Conclusions:** Area under curve (AUC) of cortisol, CRP, and CURB-65 from ROC curves were 0.847, 0.783, and 0.724 respectively. In the subjects with serum cortisol ≥22.8 μg/dl, CRP, PCT, CURB-65 score, and mortality were significantly elevated.

**Conclusion:** These findings suggest that measurement of serum cortisol in early stage may provide helpful information in the assessment of CAP severity.
Results: The mortality rate was 12.3%. 120 (48%) patients were admitted to the hospital, despite the fact they were classified as risk class I or II. Accordance to guidelines as far as the initial antimicrobial regimen is concerned was poor (152 patients, 60%). A trend towards shorter length of hospitalization was observed in patients treated with an initial antimicrobial in accordance to guidelines compared to those receiving initial regimen in discordance to guidelines.

Conclusion: The implementation of CAP guidelines by chest physicians in the major Greek hospital for thoracic diseases is poor. Improvement of adherence may shorten the length of hospitalization and reduce the financial burden for the national health system.

P2495
Ventilator-associated pneumonia in surgical intensive care unit: Risk factors for mortality and survival period
Hisashi Shoji, Takahiro Takuma, Koichiro Yoshida, Yoshihito Niki. Department of Clinical Infectious Diseases, Showa University, School of Medicine, Tokyo, Japan

Objectives: The aim of this study was to reveal the prognostic factors of Ventilator-Associated Pneumonia (VAP) in the surgical ICU of Showa University Hospital in Tokyo.

Patients and methods: We reviewed 1629 cases administrated mechanical ventilation in surgical ICU from Apr,2006 to Dec,2010. In these 1629 cases, 46 patients were diagnosed VAP. We evaluated whether backgrounds, general conditions, laboratory data, chest radiographic features at the time of VAP onset and severity of VAP may contribute to the mortality or survival period.

Results: Twenty-three patients (50%) were dead. Multivariate analyses using significant ($p<0.05$) parameter in univariate analyses revealed different results, but bilateral pneumonia had significant differences in the both multivariate analyses of mortality and survival period (Table 1 & 2).

Table 1. Multivariate analysis of mortality in VAP patients

<table>
<thead>
<tr>
<th>Factor</th>
<th>Odds ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BROAD*</td>
<td>10.71</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Re-Operation</td>
<td>36.04</td>
<td>0.0026</td>
</tr>
<tr>
<td>Bilateral Pneumonia</td>
<td>15.45</td>
<td>0.0178</td>
</tr>
</tbody>
</table>

* BROAD is a severity index of Japanese Respiratory Society Guidelines.

Table 2. Multivariate survival analysis from Cox proportional hazard model

<table>
<thead>
<tr>
<th>Factor</th>
<th>Hazard ratio</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>APACHE II</td>
<td>1.068</td>
<td>0.0245</td>
</tr>
<tr>
<td>Bilateral Pneumonia</td>
<td>2.640</td>
<td>0.0052</td>
</tr>
</tbody>
</table>

Figure 1 shows Kaplan-Meier curves of radiographic findings and survival period.

Figure 1. Kaplan-Meyer analysis of radiographic findings in VAP patients

Conclusion: In this study, bilateral pneumonia had high mortality and was shorten survival period. We will present the other risk factors for mortality in this Annual Congress.