**159. Biomarkers and outcomes of community-acquired pneumonia**

**P1459**

Does the serum C-reactive protein (CRP) predict adverse outcomes in patients admitted with community acquired pneumonia?

Gareth Walters, Hon Sum Liu, Monika Gemza, Farrukh Rauf. *Respiratory Medicine, Worcestershire Royal Hospital, Worcester, United Kingdom*

BTS guidelines on management of community acquired pneumonia suggest that failure of c-reactive protein (CRP) to resolve by ≥50% during admission predicts complication. We aimed to see whether a high admission CRP or non-resolving CRP predicted adverse outcome in bacterial pneumonia. We undertook a retrospective cohort study of adults (n=197) admitted to our hospital with bacterial pneumonia 2005-10. Age, length of stay (LOS), CRP on admission and subsequent CRPs were recorded from electronic patient data. We measured incidence of abscess, parapneumonic effusion, empyema, ITU admission and all-cause mortality within 30 days of admission, as adverse events. Incidence of adverse events within 30 days: abscess (0%); effusion (9.6%); empyema (5.2%); ITU admission (7.6%); death (12.2%). CRP ≥300mg/L on admission increased probability of ITU admission (p=0.006;OR=6.5 (1.93-21.86)) but not effusion, empyema or all-cause mortality. However, CRP ≥100mg/L on admission was not associated with increased probability of adverse event; although median LOS was 8 days (IQR 4-20), compared to 6 (IQR 2-12.5) for CRP <100. Failure of CRP to fall by ≥50% within ≥4 days of admission increased median LOS from 10 to 13 days, and increased probability of effusion (p=0.03;OR=5.83 (1.2-28.4)) and death (p=0.02;OR=4.82 (1.26-18.5)). Admission CRP ≥100 and CRP ≥300 are not reliable predictors of adverse outcome in our patients with pneumonia. In addition, failure of resolution of CRP by ≥50% at ≥4 days increases probability of effusion and death, but is not a reliable marker of empyema or ITU admission.


**P1460**

Biomarkers as complication predictors in community-acquired pneumonia

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In order to determine if some marker that can help us to predict complications in patients admitted with community-acquired pneumonia (CAP), we prospectively included 228 patients and studied leukocyte count (WBC), C-reactive protein (CRP), procalcitonin (PCT) and midregional proadrenomedullin (MR-proADM) in the first 24 hours of their arrival.

One hundred and forty six (64%) patients suffered 310 significant complications within first 30 days after hospital admittance. Most frequent complications were: respiratory failure, pleural effusion, left cardiac failure, tachyarritmias, septic shock and mechanical ventilation. We found significant raised levels of MR-proADM (p <0.0001), PCT (p=0.001) and CRP (p=0.004) (Table 2) and in higher PSI (p<0.0001) and CURB65 (p<0.0001) scores, in patients with complications.

In ROC analysis the best AUCs were PSI 0.729 and MR-proADM 0.706. The optimal cut-off to predict complications for MR-proADM was 0.833 mmol/L, sensitivity 67.35%, specificity 66.23%, positive likelihood ratio (LHR+) 1.99 and negative likelihood ratio (LHR-) 0.49. Findings for PSI class 4 and 5, were sensitivity 72.3%, specificity 62.34%, LHR+ 1.92 and LHR- 0.44. Similar results were obtained when we compared patients with and without respiratory complications. PCT and CRP, and especially MR-proADM and PSI score, appear to be useful in early identification of patients at risk for complications during hospitalization.

<table>
<thead>
<tr>
<th>Complication</th>
<th>CRP (mg/L)</th>
<th>WBC (10^9/L)</th>
<th>PCT (ng/mL)</th>
<th>MR-proADM (nmol/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>0.204</td>
<td>11.1</td>
<td>0.06</td>
<td>0.37</td>
</tr>
<tr>
<td>YES</td>
<td>0.204</td>
<td>11.1</td>
<td>0.06</td>
<td>0.37</td>
</tr>
<tr>
<td>p-value</td>
<td>0.004</td>
<td>0.34</td>
<td>0.001</td>
<td>-0.0001</td>
</tr>
</tbody>
</table>

Table 1. Biomarker levels in patients with and without complications.
We studied the accuracy of white blood count (WBC) and 3 biological markers, C Reactive Protein (CRP), Procalcitonin (PCT) and Pseudomonadnellin (P-on-ADM) obtained in the admittance at Emergency Department, in predicting mortality of 224 patients hospitalized with Community Acquired Pneumonia (CAP).

Table 1: shows short (30 days), and 60 and 100 days) and long term (1 year) mortality, as well as biomarker levels and their differences between deaths and survivors.**

ROC analysis showed that AUC for MR-proADM was significantly higher compared to those of PCT, CRP and WBC, and without significant differences when compared with PSI and CURB65.

Optimal cut-off to predict 30-day mortality for MR-proADM was 1.066 nmol/L. For 90 and 180-days mortality the optimal cut-off for MR-proADM was the same, 1.001 nmol/L, and for 1-year mortality, 0.998 nmol/L. A logistic regression model combining MR-proADM levels with PSI score showed:

- For 90 and 180-days mortality the optimal cut-off for MR-proADM was the same, 1.001 nmol/L, and for 1-year mortality, 0.998 nmol/L.
- A logistic regression model combining MR-proADM levels with PSI score showed:
  - A threshold of PCT > 0.5 rules out viral etiology with a very high negative predictive value. Legionella is associated with initial higher CRP. CRP and PCT do not allow to differentiate between viral or atypical etiology.

**Materials and methods:** Prospective observational study in 685 patients. The etiology of CAP was classified as bacterial, viral and atypical (Mycoplasma, Chlamydia and Chlamydophila). We have calculated the cut-off points of PCT and CRP to differentiate bacterial and viral etiology and its diagnostic value through sensitivity (S), specificity (E), positive predictive value (PPV) and negative predictive value (NPV).

**Results:** An etiological diagnosis was reached in 295 (43%) patients: 203 (29.6%) bacterial - 118 S pneumoniae (51.1%) and 24 Legionella (11.8%); 12 (1.8%) virus and 24 (3.5%) atypical. The comparison between Legionella vs S pneumoniae with a cut off CRP > 2.2 and S.70%. E: 59%. PPV: 27%. NPV: 90%. Atypical vs Bacteria was a threshold of PCT > 0.5 and S.91%. E: 68%. PPV: 22%. NPV: 97%. Virus vs Bacteria with a cut off PCT < 0.5 and S.89%. E: 66%. PPV: 12%. NPV: 99%.

**Conclusions:** A threshold of PCT > 0.5 rules out viral etiology with a very high negative predictive value. Legionella is associated with initial higher CRP. CRP and PCT do not allow to differentiate between viral or atypical etiology.
The aim of our study was to evaluate the impact of the inflammatory response on admission and time to reach clinical stability (TCS) in hospitalized patients with CAP. An observational, prospective study was performed on consecutive patients hospitalised for CAP from April to December 2010 at the Respiratory Dpt., Policlinico Hospital, Milan, Italy. Cytokines were detected on blood samples collected within 24 hours from the admission with a high sensitivity immunoassay, and were classified as pro-inflammatory (IL6) and anti-inflammatory (IL4 and IL10). Gradients between the latter and the former were also calculated. Two groups of patients were identified: those who reached CS within 3 days from the admission (Group A) and the rest of population (Group B). A total of 43 subjects were prospectively enrolled (26 males; mean±SD age: 71±18 yrs). Cytokine values are shown in Table according to the two study groups.

<table>
<thead>
<tr>
<th>Cytokine</th>
<th>Group A</th>
<th>Group B</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL6</td>
<td>20.51±25.93</td>
<td>142.32±164.29</td>
<td>0.015</td>
</tr>
<tr>
<td>IL4/IL6</td>
<td>0.28±0.45</td>
<td>0.05±0.07</td>
<td>0.006</td>
</tr>
<tr>
<td>IL10/IL6</td>
<td>0.13±0.11</td>
<td>0.04±0.05</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Negative correlations were found between IL10/IL6 ratio and TCS (r: -0.372, p=0.014), as well as IL4/IL6 ratio and TCS (r: -0.312, p=0.042). An effective anti-inflammatory response seems to be a protective factor, whilst individuals showing unbalanced pro-inflammatory patterns take a longer time to recover. Further research is needed to assess the potential application of specific therapeutic agents in order to attenuate inflammatory damage.

### P1465 Biomarkers and community acquired pneumonia (CAP) severity
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To check if any biomarker can be useful to assess Community Acquired Pneumonia (CAP) severity, we studied white blood cells count (WBC), and levels of C Reactive Protein (CRP), Procalcitonin (PCT) and Proadrenomedullin (MR-proADM), as well as PSI and CURB65 scores from 228 patients with CAP within the first 24 hours of their admission in our hospital. MR-proADM correlated better with both severity scores than other biomarkers, and was the only biomarker able to distinguish among all different risk classes of PSI score (p<0.05 for every of the two groups comparisons, see figure 1 and 2). ROC analysis for discrimination between low risk (PSI 1-3) from high risk (PSI 4-5) CAP showed that MR-proADM had the best AUC (0.811) and could be considered a good predictor of CAP severity (see figure 1 and table 1). Optimal cut-off of MR-proADM of 0.646 mmol/L showed a sensitivity of 92.1%, specificity 55.1%, positive predictive value 76.2%, and negative predictive value 80.3% for severe CAP.

Table 1. ROC curves

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>AUC</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>0.568</td>
<td>(0.472, 0.662)</td>
<td>0.018</td>
</tr>
<tr>
<td>PCT</td>
<td>0.527</td>
<td>(0.430, 0.624)</td>
<td>0.001</td>
</tr>
<tr>
<td>WBC</td>
<td>0.962</td>
<td>(0.844, 0.980)</td>
<td>0.013</td>
</tr>
<tr>
<td>MR-proADM</td>
<td>0.747</td>
<td>(0.633, 0.860)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

MR-proADM can be helpful, together with validated clinical scores, to identify CAP severity in the first hours of patient’s management.

### P1466 Biomarkers to discriminate bacterial, viral and mixed community acquired pneumonia (CAP)
Elsa Mincholé1, Ana Lasierra2, Ana Lilian Simon1, Sergio Fandos1, Maria Angeles Ruiz1, Virginia Moya1, Francisco De Pablo1, Salvador Bello1,
1Pulmonology Department, Hospital Universitario Miguel Servet, Zaragoza, Spain; 2Clinical Biochemistry Department, Hospital Universitario Miguel Servet, Zaragoza, Spain; 3Microbiology Department, Hospital Universitario Miguel Servet, Zaragoza, Spain

To find out if C Reactive Protein (CRP), Procalcitonin (PCT) and Proadrenomedullin (Pro-ADM) are able to discriminate different CAP etiologies, we collected biological samples from 228 patients admitted in our hospital with CAP in the first 24 hours. Average age: 73 years, 61% males. We performed a complete microbiological searching, and found at least one pathogen in 155 (67.98%) patients. Fifty seven were typical bacterial CAP, 57 viral or atypical and 41 were mixed (virus + bacteria).

Results:
- PCT was the only biomarker that showed significant differences (p<0.0001) between typical bacterial CAP (2.402 ng/mL) and viral/atypical bacterial CAP (0.272 ng/mL). Also, was the only biomarker that discriminated (p=0.007) viral pneumonia from mixed pneumonia (1.568 ng/mL).
- PCT and CRP levels in viral CAP showed significant differences (p<0.0001 and p=0.046 respectively) when compared to the other etiologies grouped together (typical bacterial + mixed).
- A PCT cut-off of 0.255 ng/mL identified typical bacterial involved CAP (bacterial and mixed) from viral/atypical ones, with a sensitivity of 74.23% and a specificity of 50%.

Conclusion: CRP, and especially PCT, seem to be useful in early identification of typical bacteria-involved CAP, including those in association with viruses.

### P1467 The ability of pro adrenomedullin to predict severe sepsis in patients with community-acquired pneumonia
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Objective: The aim of this study was to compare the ability that validated predictive rules (PSI and CURB65) and the new biomarker Pro adrenomedullin (proADoM), had to predict severe sepsis.
Methods: We prospectively included patients over 18 years old for a period of one year. PSI and CURB65 scores were estimated to all of them on admission. Blood samples were collected at the time of diagnosis to determine proADoM

Conclusion:
levels. Patients with septic shock were also included. The predictive accuracy of proADM, PSI or CURB65 to predict severe sepsis was determined by calculating the area under the ROC curve (AUC). AUC values were compared using the non-parametric method described by Hanley and McNeil. Further, we also tested whether the inclusion of the biomarker improves the performance of the PSI or CURB65 risk scores by comparing the AUC values of the logistic regression models including the biomarker and PSI or CURB65 to the model including risk solely scores.

Results: A total of 615 patients with CAP were included in our study. 320 (52.03%) were hospitalized and 295 (47.97%) were not. A group of 232 patients had severe sepsis of whom 15 had septic shock. The AUC for proADM to predict severe sepsis was 0.85. The AUC for PSI score was 0.87 and the one for the CURB65 score was 0.86. Once proADM was added to the PSI score or to the CURB65 score, the AUC for predicting severe sepsis was 0.89. In both cases p value was <0.001.

Conclusion: ProADM is an important parameter in the prediction of severe sepsis in patients with CAP. Indeed, adding this biomarker to validated predictive rules, improves the predictive accuracy for severe sepsis.

P1468
Pre-adrenomedullin, pro-atrial natriuretic peptide and procalcitonin levels at admission in patients with community-acquired pneumonia and its correlation with risk scores
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Objectives: To assess levels of MR-proADM, MR-proANP and PCT in patients with community acquired pneumonia (CAP) and to correlate admission levels with the following severity risk scores: PSI, CURB65 and severe CAP (SCAP) and prognosis.

Methods: Study population was 85 patients with diagnosis of pneumonia. Epidemiological, clinical, microbiological, analytical and radiological data were recorded. Plasma samples were collected at admission. Patients were stratified according to the PSI, CURB65 and SCAP. Complications were defined as need of ICU admission or death.

Results: MR-proANP and MR-proADM showed significant differences across PSI scores of 0-1 and p<0.001 whereas no statistical differences were found for PCT (p=0.152). Regarding CURB65, MR-proANP and MR-proADM levels increased according to CURB65 score points (p=0.001 and p=0.001), but not PCT (p=0.071). Higher levels of MR-proANP (p=0.002), proADM (p=0.001) and PCT (p=0.069) were found in patients with CURB-65 criteria. MR-proANP (p=0.001) and MR-proADM (p=0.015) showed statistical differences when grouping SCAP in five risk groups. Levels of PCT (p=0.053) and MR-proADM (p=0.001) were significantly higher in patients admitted to ICU. Levels of all biomarkers were higher in non-survivors in comparison to survivors, although no statistical differences were found.

Conclusions: Admission MR-proANP and MR-proADM levels correlate with pneumonia severity assessed by PSI, CURB65 and SCAP. PCT levels correlate with new severity SCAP index. Higher biomarker levels can be useful for identifying patients with a poorer prognosis.

P1469
Inflammatory pattern in bacteriemic community-acquired pneumonia
Beatriz Mostué1, Rosario Menéndez2, Eva Polverinos3, Soledad Reyes4, Jose Miguel Sahuquillo5, Juan Ginés Córdoba1, Catia Cillóniz6, Raquel Martínez1, Rosaly Moreno1, Antoni Torres2, Jacobo Sellares2, María Ángeles Marcos4.

Poster Discussion
Room G102-103 - 14:45-16:45

Background: To assess levels of MR-proADM, MR-proANP and PCT in patients with community acquired pneumonia (CAP) and to correlate admission levels with pneumonia severity assessed by PSI, CURB65 and SCAP. Complications were defined as need of ICU admission or death.

Results: MR-proANP and MR-proADM showed significant differences across PSI scores of 0-1 and p<0.001 whereas no statistical differences were found for PCT (p=0.152). Regarding CURB65, MR-proANP and MR-proADM levels increased according to CURB65 score points (p=0.001 and p=0.001), but not PCT (p=0.071). Higher levels of MR-proANP (p=0.002), proADM (p=0.001) and PCT (p=0.069) were found in patients with CURB-65 criteria. MR-proANP (p=0.001) and MR-proADM (p=0.015) showed statistical differences when grouping SCAP in five risk groups. Levels of PCT (p=0.053) and MR-proADM (p=0.001) were significantly higher in patients admitted to ICU. Levels of all biomarkers were higher in non-survivors in comparison to survivors, although no statistical differences were found.

Conclusions: Admission MR-proANP and MR-proADM levels correlate with pneumonia severity assessed by PSI, CURB65 and SCAP. PCT levels correlate with new severity SCAP index. Higher biomarker levels can be useful for identifying patients with a poorer prognosis.

P1470
C-reactive protein (CRP) utility in severe community-acquired pneumonia (SCAP) prognosis
Alexander Makarevich1, Oksana Omelyanenko1, Elena Amelchenko2, Tatyana Rybina2, 11th Department of Internal Diseases, Belarusian State Medical University, Minsk, Belarus; 2Clinical Laboratory of Occupational Diseases, Republican Scientific and Practical Center of Hygiene, Minsk, Belarus

Background: Among SCAP patients mortality is usually high, especially in those requiring invasive mechanical ventilation (IMV) or vasopressor support (VS). We aimed to assess CRP on admission and 8th day values association with mortality and adverse outcomes in SCAP patients requiring intensive care unit (ICU) admission.

Methods: 30 ICU patients with SCAP (CURB-65 class 3,4) were enrolled. Control group included 16 healthy volunteers. X-ray examination, CRP levels measurement were performed on admission and on day 8. The main endpoints were in-hospital mortality (IM), duration of ICU stay (DICUS), necessity of IMV and VS.

Results: CRP values correlated with CURB-65 score (r=0.8, p<0.05 and r=0.76, p<0.05 respectively) and were statistically different in CURB-65 class 3 and 4 patients (p<0.05). CRP levels were higher in non-survivors vs survivors [median] (311 vs 24 mg/ml, p<0.05 respectively) in the 1st and 8th days [249 vs 89 mg/ml, p<0.05 respectively], revealed correlation with IM (r=0.64, p<0.05 and r=0.6, p<0.05 respectively). Longer DICUS was associated with higher CRP values on admission (r=0.43, p<0.05). CRP on the 1st day correlated with necessity of VS and IMV (r=0.79, p<0.05 and r=0.63, p<0.05 respectively), their values appeared to be higher in patients requiring VS and IMV vs those who didn’t need them [311 vs 244 mg/ml respectively, p<0.05]. Negative X-ray dynamics was associated with increased CRP levels on the 1st day (r=0.55, p<0.05).

Conclusions: Increased CRP values in SCAP patients requiring ICU admission are associated with disease severity, negative X-ray dynamics and could be used for identifying patients with high IHM risk, prediction of DICUS, necessity of VS and IMV.

P1471
Biomarkers in severe community-acquired pneumonia (SCAP) prognosis, complications and outcomes
Oksana Omelyanenko1, Alexander Makarevich1, Elena Amelchenko2, Tatyana Rybina2, 11th Department of Internal Diseases, Belarusian State Medical University, Minsk, Belarus; 2Clinical Laboratory of Occupational Diseases, Republican Scientific and Practical Center of Hygiene, Minsk, Belarus

Background: Early prognostic assessment is crucial for SCAP patients management. We studied accuracy of C-reactive protein (CRP), interleukin-2 (IL-2), interferon-γ (IFN-γ), free triiodothyronine (T3), free tetraiodothyronine (T4), thyroid stimulating hormone (TSH), total cortisol in predicting SCAP hospital mortality and disease severity, outcomes, complications, need for invasive mechanical ventilation (IMV) and vasopressor support (VS).

Methods: 30 ICU patients with SCAP (CURB-65 class 3,5 were enrolled. Control group included 16 healthy subjects. X-ray examination, serum markers measurement were performed on the 1st day after admission.

Results: CAP severity was associated with increased CRP (r=0.8, p<0.05), IL-2 (r=0.64, p<0.05), TSH (r=0.87, p<0.01), decreased T3 (r=-0.75, p<0.05) values. Non-survivors revealed higher CRPIL-2, TSH, lower T3, TSH levels vs those in survivors [median: 11 vs 24 mg/ml, p<0.05], [138 vs 8.9 mg/ml, p=0.03], [1377 vs 865 nmol/l, p=0.03], [2.8 vs 4.6 nmol/l, p=0.05], [0.89 vs 2.6 mMU/l, p=0.03]. Necrotising pneumonia developed in patients with decreased IL-2, T4 values (r=0.6; p=0.04 and r=0.48; p=0.03) pleural effusion - in those with enhanced IFN-γ levels (r=0.8, p=0.01). IL-2/CRP,TC values were higher in patients requiring VS [122 vs 19 mg/ml, p=0.04], [311 vs 232 mg/ml, p<0.05], [1377 vs 865 nmol/l, p=0.03]. Enhanced CRP, low T3 levels were associated with IMV requirement (r=0.63; p<0.05 and r=0.71; p<0.05), Duration of ICU stay correlated with TC, CRP levels (r=0.89, p=0.01 and r=0.43, p=0.04),length of hospitalisation - with TSH, T4 levels (r=0.56, p=0.01 and r=0.41, p=0.05).

Conclusions: CRP, thyroid hormone, TC, IL-2, IFN-γ can augment early prognostic assessment of SCAP patients.
Conclusion: Pro-ADM is a powerful tool for the prediction of mortality and other complications in hospitalized patients with CAP. In addition, we found that PCT has the greatest predictive value for complications such as ventilation/shock or ICU/ICU admission.

P1473
Prognostic value of cortisol and adrenocorticotropic hormone (ACTH) in severe community-acquired pneumonia (SCAP) patients
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Background: Elevated serum total cortisol (TC) levels in critically-ill patients revealed association with severity of critical illness as well as risk of death. We aimed to evaluate adrenal function in SCAP patients requiring intensive care unit (ICU) admission and its relationship with SCAP severity, outcomes (in-hospital mortality (IH)), duration of ICU stay (DICUS)), and need for invasive mechanical ventilation (IMV) and vasopressor support (VS).

Methods: 30 ICU patients with SCAP CURB-65 class 3-5 were enrolled. Control group included 16 healthy volunteers. Serum basal TC and ACTH were measured on the 1st and 8th days.

Results: Increasing CAP severity was associated with increased TC values both on admission and day 8 (r=0.87, p<0.01 and r=0.88, p<0.01). Their levels revealed statistical difference in CURB-65 score classes (p=0.033 and p=0.048 respectively). TC on admission and day 8 values demonstrated significant correlation with IHM (r=0.86; p=0.011 and r=0.88; p=0.021 respectively) and were higher in non-survivors vs those in survivors (median:1377 vs 865 nmol/L, p=0.033 and 823 vs 387 nmol/L, p=0.049 respectively). TC on admission levels correlated with need for VS (r=0.87, p=0.012) and showed higher concentrations in patients requiring IMV (1177 vs 865 nmol/L, p=0.034). TC values on the 1st day were associated with DICUS (r=0.89; p=0.019). ACTH values on ICU admission appeared to be higher in patients requiring IMV [33.5 vs 11.4 ng/ml respectively] (r=0.72; p=0.047), but were not statistically different.

Conclusions: Elevated serum TC in SCAP is associated with disease severity and could identify SCAP patients at high risk of IHM, predict DICUS and VS requirement.

P1474
Interleukin-2 (IL-2) and interferon-γ (IFN-γ) in identifying severe community-acquired pneumonia (SCAP): clinical outcomes and complications
Alexander Makarevich1, Oksana Omelyanenko1, Elena Amelchenko2, Tatyana Rybina2.* 11st Department of Internal Diseases, Belarusian State Medical University, Minsk, Belarus; 2Clinical Laboratory of Occupational Diseases, Republican Scientific and Practical Center of Hygiene, Minsk, Belarus

Background: Exaggerated and protracted proinflammatory response is associated with poor prognostic implications in SCAP. We assessed the diagnostic value of IL-2 and IFN-γ in identifying SCAP in-hospital outcomes and complications.

Methods: 30 SCAP patients CURB-65 class 3-4 were enrolled. Control group included 16 comparable healthy volunteers. We performed X-ray examination, IL-2 and IFN-γ measurement within the first 24 hours after admission and on day 8. In-hospital mortality (IHM), need for vasopressor support (VS), SCAP complications (necrotising pneumonia (NP), pleural effusion (PE)) were analyzed. Patients who developed NP showed lower IL-2 levels vs those without PE [4.3 and 3.8 pg/ml, p<0.05].

Conclusions: IL-2 on admission values are reliable for mortality risk stratification, prediction of need for VS and NP development, IFN-γ could be helpful in identifying PE complication in SCAP patients.

P1475
Thyroid hormones implication in severe community-acquired pneumonia (SCAP): Relationship with survival, outcomes and clinical complications
Oksana Omelyanenko1, Alexander Makarevich1, Elena Amelchenko2, Tatyana Rybina2.* 11st Department of Internal Diseases, Belarusian State Medical University, Minsk, Belarus; 2Clinical Laboratory of Occupational Diseases, Republican Scientific and Practical Center of Hygiene, Minsk, Belarus

Background: The low thyroid hormone levels in the absence of primary thyroid disease have proved to be predictive of outcomes and disease severity in critical illness. We aimed to assess thyroid function in SCAP patients requiring intensive care unit (ICU) admission and its association with in-hospital outcomes, SCAP complications, need for invasive mechanical ventilation (IMV) and vasopressor support.

Methods: 40 ICU patients with SCAP CURB-65 class 3-5 were enrolled. Control group included 16 healthy subjects. X-ray examination, free triiodothyronine (fT3), free thyroxine (fT4), thyroxine stimulating hormone (TSH) levels measurement were performed within the first 24 hours after admission.

Results: fT3 initial values decreased with increasing severity of CAP (r=0.75, p=0.0007). fT3 and TSH levels were lower in non-survivors vs survivors (median: 2.8 vs 4.6 pmol/L, p=0.008 and 0.89 vs 2.6 mU/L, p=0.037) and revealed correlation with in-hospital mortality (IHM) (r = -0.67, p=0.003 and r = -0.54, p=0.031 respectively). Longer in-hospital stay was associated with higher TSH (r=0.56; p=0.017) and lower fT4 values on admission (r= -0.44, p=0.05). Necrotising pneumonia (NP) developed in patients with lower fT3 levels vs those without destructive lung changes [16.9 vs 19.1 pmol/L, p=0.042]. IT3 correlated with need for IMV (r = -0.71; p=0.001) and was lower in patients requiring IMV [2.86 vs 4.8 pmol/L, p=0.005].

Conclusions: Thyroid hormone values in SCAP patients are reliable markers of diseases severity, high risk of IHM and NP development and can be helpful in identifying patients requiring IMV and predicting length of in-hospital stay.

P1476
Pro-adrenomedullin, procalcitonin and CRP levels to predict bacterial pneumonia in patients admitted to emergency room
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Objectives: To assess if MR-pro-ADM, PCT and CRP levels can distinguish
bacterial pneumonia from other kind of lower respiratory tract infections (LRTI).

Methods: Patients with fever and respiratory symptoms that were admitted in emergency room (ER) and from whom blood cultures were drawn. After retrospective analysis, patients were classified as: pneumonia (n=85), chronic obstructive pulmonary disease (COPD) exacerbation (n=25) and bronchial infection (n=52). Four patients were admitted to ICU and 9 died.

Results: PCT showed significantly higher levels in pneumonia when comparing with COPD exacerbation (p=0.003) and bronchial infection (p=0.002). CRP only showed significantly higher levels when comparing pneumonia group vs bronchial infection (p=0.002). Finally, MR-proADM showed statistical higher levels when comparing pneumonia group with COPD exacerbation (p=0.014) and bronchial infection (p=0.006). PCT and MR-proADM showed significantly higher levels in cases of definite bacterial diagnosis in comparison to other cases (pneumonia of probable bacterial or unknown origin, COPD exacerbations and bronchial infections) (p=0.017 and p=0.004). PCT and MR-proADM are significantly higher in patients admitted to ICU (p=0.011 and p=0.001). Regarding mortality, no significant differences were found.

Conclusions: PCT and MR-proADM show significantly higher levels in pneumonia in comparison to other lower respiratory tract infections. Biomarkers measurement can be helpful for the management of patients admitted in ER with clinical symptoms of respiratory tract infection.