270. Aetiology, diagnosis and outcomes in community-acquired pneumonia

**P2457**

Late-breaking abstract: The differences in clinical presentations between severe health care-associated pneumonia and severe community-acquired pneumonia: A single center experience

Goohyeon Hong, Sang-Won Um, Won-Jung Koh, Gye Young Suk, Man-Pyo Chung, Ho-Joong Kim, O-Jung Kwon, Kyeong-Man Jeon. Medicine, Division of Pulmonary and Critical Care Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Republic of Korea

Health care associated pneumonia (HCAP) has been proposed as a new category of respiratory infection. HCAP shows higher mortality rates than CAP. But it is not clear whether the poor outcome of HCAP is related to the presence of more comorbidities or to a higher incidence of MDR pathogen and inappropriate empirical antibiotic treatment. Thus, we aim to establish whether differences in outcomes for HCAP are due to differences in severity of pneumonia, not due to MDR pathogen. We conducted a retrospective observational study of patients with severe HCAP and severe CAP who were hospitalized through the emergency department in Jan 2008 Dec 2009 at Samsung Medical Center, Seoul, Korea, and compared clinical characteristics, severity, distribution of pathogen, and outcomes. In total, 757 patients hospitalized with pneumonia were eligible, 382 patients were severe pneumonia. sHCAP was significantly more common than sCAP. There were no differences between two groups in distribution of pathogens. sHCAP showed higher occurrence of potentially MDR pathogens than sCAP, but there were no differences between two groups in the inappropriate initial antimicrobial treatment. In early case-fatality rate, there were no differences between two groups but in-hospital mortality showed higher mortality rate in sHCAP. In a multiple logistic regression analysis, however, in-hospital mortality was independently associated with ICU admission. Differences in outcomes for HCAP are due to differences in severity of pneumonia, defined as ICU admission, not due to MDR pathogens.

**P2458**

Viral aetiology and clinical characteristics of community-acquired pneumonia in adults in Guangzhou, China

Yang-Qing Zhan1, Rong-Chang Chen1, Zi-Feng Yang1,2. 1Respiratory Medicine, The First Affiliated Hospital of Guangzhou Medical College, State Key Laboratory of Respiratory Disease (Guangzhou Medical University, China), Guangzhou, Guangdong, China; 2Faculty of Chinese Medicine, Macau University of Science and Technology, Macau SAR, China

Background: Recently epidemiological surveillances show that viral pneumonia is more commonly reported than previously estimated. However, to date, little information is available in China.

Objective: To estimate incidence of adult viral Community-acquired pneumonia (CAP).

Methods: Consecutive adult patients with a diagnosis of CAP during April and December of 2009 were prospectively enrolled. Paired sera were routinely performed by hemagglutination inhibition assay or indirect immunofluorescence. Swab samples were tested for respiratory viruses by using virus culture and RT-PCR. Viral aetiology was considered definitive if at least one of the above tests was positive.

Results: Overall 149 CAP patients were enrolled, with 84 males. The median (interquartile range, IQR) ages were 60 (35–77) years. Paired sera were available in 70 cases. Viral aetiology was established in 48 cases (32.2%). Forty-four patients were infected by a single virus (influenza A 24 cases, influenza B 5 cases, parainfluenza virus type 3 (PIV-3) 11 cases, PIV-1 and adenovirus 2 cases each) and four cases by two viruses. Fever (≥39° (66.7%), fatigue (64.6%), and paroxysmal spasm (52.1%), sore throat (45.8%), cough (41.7%) and coryza (41.7%) were the most common symptoms in viral pneumonia patients. Some influenza A or PIV-3 infected patients manifested hemoptysis and chest pain. Dyspnea and gastrointestinal symptoms were also common in influenza and PIV-3 infected patients. Oxygen therapy was more common in viral pneumonia patients than others (54.2% vs 31.7%, P=0.008).

Conclusion: Respiratory viruses were common pathogens in CAP in Guangzhou.

**P2459**

Pneumonia in patients who received health care at home – Should they be categorized as CAP or HCAP?

Toru Rikimaru, Norsko Hakushima, Reiko Toda. Department of Respiratory Disease, Fukuoka Sanno Hospital, Fukuoka City, Fukuoka Prefecture, Japan

Introduction: Healthcare-associated pneumonia (HCAP) is a condition in patients (pts) who are not hospitalized but features are similar to hospital-acquired pneumonia. There are many people who receive HC at home instead of at a nursing home (NH). It is not clear whether they should be treated as community-acquired pneumonia (CAP) or HCAP.

Aims and objectives: This study sought to declare the features in pts who received...
HC at home, and to classify them as CAP or HCAP by comparing them with CAP and NH-acquired pneumonia (NHAP) which occupy an important position in HCAP.

**Methods:** We evaluated and separated 1000 pts into three groups, Group A 517 pts; complete CAP (A), Group B 333 pts; NHAP (B), and Group C 160 pts; who received HC at home (C).

**Results:** The features of C were similar to B in age, and between A and B in sex, total protein and independency. There were no differences between the three groups in body temperature, WBC and CRP. In bacteriological features, S. pneumoniae, H. influenzae and K. pneumoniae were 9.5%, 5.8% and 3.9% in A, 7.2%, 2.2% and 10.9% in B and 3.6%, 5.5% and 9.1% in C, respectively. Other features of B and C were similar and had many drug-resistant pathogens e.g. MRSA (A: 5.3%, B: 21.0%, C: 16.4%) and P. aeruginosa (A: 2.5%, B: 13.4%, C: 10.9%). Mortality rates of A, B and C were 6.0%, 18.6% and 10.0%, respectively.

In restricted analysis within total care pts of C, the clinical features were more similar to B, with a mortality of 18.4%.

**Conclusions:** The clinical features of C were similar to NHAP in many categories. We concluded that pneumonia in pts who have received HC at home should be classified as HCAP, especially in poor independency pts.

**P2460**

Role of viruses, alone and in association with bacteria, in adults hospitalized with community-acquired pneumonia (CAP)

Elisa Mincholé1, Sergio Fandos1, Ana Lasierra 2, Ana Lilian Simon 1, Maria Role of viruses, alone and in association with bacteria, in adults hospitalized

We performed a prospective, observational study of etiology of community-acquired pneumonia (CAP) admitted in our hospital, including bacteria, viruses and mixed bacterial/virus cases. From 228 patients that carried out a complete microbiological searching, including spuota, urinary antigens, hemocultures, paired serologies, as well as viral immunofluorescence, and two PCR for respiratory viruses from nasopharyngeal washes. At least one etiological agent was identified in 155 patients (67.98%). Fifty seven (36.7%) were typical bacterial CAP, 57 viral (or atypical bacterial) (36.7%) and 41 (26.4%) mixed (virus and bacterial). (Table 1)

**Table 1.** Biology of CAP patients

<table>
<thead>
<tr>
<th>Viruses</th>
<th>Bacteria</th>
<th>Mixed (Virus &amp; Bacteria)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.7%</td>
<td>36.7%</td>
<td>26.4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Conclusions:**

- Viruses are very common agents in hospitalized adults with CAP, being present in more than half of the cases of well-known etiology, and in one out of three patients they were found as unique pathogen.
- If we search, we can also identify mixed bacterial-viral CAP as a common cause of CAP. Adenovirus and Rhinovirus were the most prevalent viral agents in mixed pneumonias.
- Streptococcus pneumoniae, alone or in association with virus, was the most prevalent agent, and one out of two pneumococcal CAP was associated with at least one virus. Viruses can have an important role in pathogenesis of pneumococcal CAP.

**Searching virus should be considered in the study of hospitalized CAP.**

**P2461**

The diagnostic yield of the pneumococcal urinary antigen test in clinical practice and its impact on antibiotic therapy

Wendy Laijen, Dominic Snijders, Wim Boersma. Department of Pulmonary Medicine, Medical Centre Alkmaar, Alkmaar, Netherlands

**Background:** The pneumococcal urinary antigen test (PUAT) is commonly used for the aetiological diagnosis of community-acquired pneumonia (CAP) and can be useful for pathogen-directed therapy. The aim of this study was to evaluate the diagnostic yield of the PUAT and the impact on antibiotic therapy in patients with CAP and a positive PUAT result.

**Methods:** A retrospective study of adults hospitalised with CAP between 2005 and 2007 was performed. All patients were tested by PUAT. Sensitivity of the PUAT was determined and whether antibiotic treatment was adapted to the PUAT results.

**Results:** 681 patients with CAP were included. Causative micro-organisms were isolated by using conventional methods in 243 (35.7%) patients. The pathogens most frequently identified was S. pneumoniae in 91 (13.4%) patients, with an increase of diagnostic yield by the PUAT to a total of 178 (26.1%) patients. The PUAT increased the total number of aetiological diagnosis from 35.7% to 48.5%. The PUAT was positive in 37 of 55 patients with definitive pneumococcal pneumonia (67.3%). PUAT was positive in 56 of 95 pneumococcal cases (definite and probable) giving an overall test sensitivity of 59.0%. The test specificity was 93.2%. A positive PUAT led to narrowing antibiotic treatment in 63 (41.2%) patients.

**Conclusion:** The PUAT is a useful technique for early detection of S. pneumoniae in patients with CAP, but the test is less sensitive in this clinical setting than prospective studies indicate. The PUAT results led the physician to narrow the antibiotic treatment, but insufficient adherence to treatment guidelines of CAP when a PUAT is positive limits its impact.

**P2462**

Incidence and risk factors of MRSA pneumonia

Katja Verharm1, Francis Maton3, Kristen Van Varenbergh1,3, Paul Jordens4,1, Department of Infection Control and Epidemiology, OLVZ Aalst, Aalst, Belgium; 2MKG, OLVZ Aalst, Aalst, Belgium; 3Department of Microbiology, OLVZ Aalst, Aalst, Belgium; 4Department of Respiratory Diseases, OLVZ Aalst, Aalst, Belgium

**Introduction:** Data on the incidence of MRSA pneumonia in Europe are scarce.

**Objective:** To study the incidence of MRSA pneumonia and its related mortality.

**Methods:** Data from the OLV hospital, a 939-bed, university-affiliated teaching hospital in Belgium, were used. The study period ran from 2006 to 2009. All respiratory tract samples, positive for MRSA, were retrospectively collected from the automated microbiology database. As multiple samples per patient were available during follow-up, only the first MRSA respiratory tract sample was considered. Of all patients with MRSA positive respiratory tract samples, the complete medical records, including chest X-ray or chest CT scans were reviewed by a pulmonologist. Patients were defined to have pneumonia according to the ECDC criteria. Risk factors such as comorbidity and previous use of antibiotics were studied.

**Results:** During follow-up, 197 patients with a MRSA positive respiratory tract sample were identified. 46 of these 197 patients developed an MRSA pneumonia of which 30 had a nosocomial pneumonia. The overall incidence of MRSA pneumonia was 0.49/1000 patient days. 25 of the 46 MRSA pneumonia were detected at ICU. In patients with MRSA pneumonia, the mortality was high, 24 of the 46 patients (52%) died during follow-up versus 32% in patients with MRSA colonization of the respiratory tract was 32%. The mean time from admission to MRSA pneumonia was 13.6 days. 50% of patients with MRSA pneumonia were previously (during current hospital admission) treated with an antibiotic vs 32.5% in MRSA colonized patients.

**Conclusion:** The incidence of MRSA pneumonia is low but mortality in these patients is high. Previous use of antibiotics is one of the main risk factors of an MRSA pneumonia.

**P2463**

Comparison of community acquired pneumonias which require admission to intensive care unit depending on etiology: Legionella vs pneumococcus

Maria Alfonso1, Marta Inchausti1, Beatriz Gómez1, Nuria Marina1, Luis Alberto Ruiz2, Ainhoa Gómez1, Sandra Pedrero1, Iraitsie Seijas2, Rafael Zuazun3,4, Pneumology, Cruces Hospital, Barakaldo, Spain; 2Intensive Care Unit, Cruces Hospital, Barakaldo, Spain

**Objective:** To describe the differences between pneumococcal bacteremic pneumonias and Legionella pneumonia (LP) which require admission to Intensive Care Unit (ICU)

**Methods:** A cross sectional study was performed from 1/1/2000 to 1/10/2010. We analyzed patients with diagnosis of PB and LP. All patients were admitted in the ICU of our Hospital. We analyzed clinical, analytical and prognosis differences

447s
Legionella 41/129 (32%) samples tested were BinaxNOW positive. The sensitivity and specificity of Legionella V-Test compared to the BinaxNOW was 97.6% and 97.7% respectively.

Results yielded 2 apparent false positives and 1 false negative: all were confirmed as true positive Legionella infections. The TAT was comparable but the new V-Test could be used directly on the urine specimen, while the BinaxNOW required two additional steps.

The V-Test has comparable performance characteristics to the BinaxNOW Legionella and is an even more user-friendly test.

In adults, the influence of Streptococcus pneumoniae (Sp) serotypes on pneumonia mortality remains unclear.

**P2464**

**Influence of streptococcus pneumoniae serotypes in clinical outcomes of pneumonia**

Yolanda Galac1, Beatriz Borjab1, Diana Colon1, Carmina Marti2, Enric Barbeta1, Respiratory Unit, Hospital General Granollers, Granollers, Barcelona, Spain; 2Microbiology, Hospital General Granollers, Granollers, Barcelona, Spain.

**Aim:** To describe the characteristics of adult patients with pneumonia caused by Sp isolated in invasive strains and the influence of different serotypes in clinical outcomes.

**Method:** A retrospective study of Sp serotypes in invasive strains isolated from patients with pneumonia, describing the clinical features and complications. Blood and pleural fluid samples were processed using the BacT-Alert system. All strains were sent to the Reference Laboratory for serotyping. Serotypes were divided into 3 groups: [1] High invasive disease potential (H group): 1, 5 and 7 F; Low invasive potential (L group): 3, 6A, 6B, 8, 19F and 23F, the rest were named as other serotypes (O group).

**Results:** Between January 2009 and December 2010 were isolated 53 Sp strains, 44 blood samples and 9 pleural fluid (3 patients had both). 18 of them were serotypes of H group, 10 were of L group, and 23 were of O group. There were a total of 58 men (58%). Mean age was 56±10.5. The study shows clinical outcomes. **Conclusion:** Contrary to what could be expected the pneumonias caused by Sp serotypes of H group had a lower mortality ratio.

---

**P2466**

**A worldwide perspective of nursing home pneumonia beside community acquired pneumonia**

Adamantia Liapikou1, Eva Polverino2, Caia Cilloniz2, Paula Peyrani3, Julio Ramirez1, Rosario Menendez2, Antoni Torres2, Respiratory and Critical Care Unit, Evangelismos Hospital, Athens, Greece; 2Respiratory Disease Department, Hospital Clinic, Barcelona, Spain; 3Infectious Disease Department, University of Louisville, Louisville, United States.

**Background:** Nursing home acquired pneumonia (NHAP) is the leading cause of death among long-term care patients and the second most common cause of transfer to hospital. The objective of the study was to characterize the incidence, microbiological and clinical outcomes of NHAP requiring hospitalization in comparison with Community Acquired Pneumonia (CAP) patients.

**Methods:** A secondary analysis of 5176 patients from the Community Acquired Pneumonia Organization database (CAPO) was performed. World regions were defined as North America (I), Latin America (II), Europe (III), and Asia and Africa (IV).

**Results:** 287 patients (6%) were identified as NHAP (mean age 80 yrs). The incidence of NHAP was 31, 39, 28, and 1% in the regions I, II, III, IV, respectively. Thirty-two patients (11%) required ICU admission. Etiology was defined in 1403 (27%) of CAP cases instead of NHAP. The most common isolated pathogens included Streptococcus pneumoniae (34%), Staphylococcus spp (7%) and Haemophilus influenzae (8.5%). Gram-(-) pathogens and Staphylococcus spp (9%) were more common in patients with NHAP, particularly in North America. The NHAP presented more frequently with pleural effusions (28% vs. 19%) and multilobar involvement (31% vs. 24%) than CAP patients. Time to clinical stability was 5.9 days in NHAP and 4.7 days in CAP patients (p<0.01). The 1-month mortality rate was statistically higher in NHAP patients than CAP patients (41% vs. 18%; p<0.01), such as for CAP-related mortality rate (17% vs. 5%) (p<0.01).

**Conclusions:** NHAP patients over the world and can be considered a different clinical entity in terms of presentation, microbiology, clinical course and mortality.

---

**P2465**

**Evaluation of the Legionella V-Test compared to the BinaxNOW to detect Legionella serogroup 1 antigen in urine samples**

Evy De Witte1, Katherine Loens 1, Christine Lammens 1, Jordy Almirall 2, Vaccine and Infectious Disease Institute, Mataró, Fundació Privada Salut del Consorci Sanitari del Maresme, Mataró, Spain.

**Aim:** To evaluate the performance of the V-tesT (Coris Bioconcept) for the detection of Legionella pneumophila serogroup 1 antigen in urine (uAg) was evaluated by comparing its results with the BinaxNOW Legionella uAg-test results (Inverness Medical). For direct uAg testing using both tests, 129 previously collected and frozen urine samples were used: 61 specimens from pneumonia patients during a Legionella outbreak: 34 from the Hospital of Mataró (Spain); 27 from the outbreak in Kapellen (Belgium, 1999) and 68 urine samples from patients with lower respiratory tract infections other than Legionella infections enrolled in the European GRACE study. In case of discrepant results, urine samples were tested with the Biotest. Results of culture and/or PCR on respiratory samples were included to conclude on the true positive status of the patient. The number of manipulations and the turn around time (TAT) were evaluated as well.

41/129 (32%) samples tested were BinaxNOW positive. The sensitivity and specificity of the V-Test in comparison to the BinaxNOW were 97.6% and 97.7% respectively.

**Results:**

<table>
<thead>
<tr>
<th>BinaxNOW positive</th>
<th>Legionella V-tesT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legionella V-tesT</td>
<td>- 86 1 87</td>
<td>+ 2 40 42</td>
</tr>
<tr>
<td>Total</td>
<td>- 88 81 129</td>
<td></td>
</tr>
</tbody>
</table>
Pneumococcal pneumonia – Are the new severity scores more accurate in predicting adverse outcomes?

Introduction:

To compare the discriminatory power (DP) of 4 scores – the classic PSI and CURB65 and the most recent SCAP (Yandiola P et al. Chest 2009;135;1572-1579) and SMART-COP (Charles P et al. Clinical Infectious Diseases 2008; 47:375–84) – in predicting major adverse events: death, ICU admission, need for invasive mechanical ventilation, and SMART-COP (Charles P et al. Clinical Infectious Diseases 2008; 47:375–84) – we performed a retrospective study of patients admitted for pneumococcal pneumonia (PP). The patients were stratified based on admission data and assigned to risk classes (low-medium-high) for each score, as validated by previous studies. Statistical analysis was done based on sensitivity, specificity and area under the curve (AUC) above the ROC curve.

Methods:

Methods: A 5-year retrospective study of patients admitted for pneumococcal pneumonia (PP). The patients were stratified based on admission data and assigned to risk classes (low-medium-high) for each score, as validated by previous studies. Statistical analysis was done based on sensitivity, specificity and area under the curve (AUC) above the ROC curve.

Results:

We assessed 142 episodes of hospitalization for PP. We observed 2 deaths, 22 admissions to the ICU, 10 patients needed mechanical ventilation and vasopressor support. The AUC for each score/event is summarized on the following table.

<table>
<thead>
<tr>
<th>Event</th>
<th>Mortality</th>
<th>ICU admission</th>
<th>Mechanical ventilation</th>
<th>Vasopressor support</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSI</td>
<td>0.96 (p=0.02)</td>
<td>0.62 (p=0.07)</td>
<td>0.62 (p=0.09)</td>
<td>0.59 (p=0.3)</td>
</tr>
<tr>
<td>CURB65</td>
<td>0.96 (p=0.02)</td>
<td>0.70 (p=0.07)</td>
<td>0.66 (p=0.09)</td>
<td>0.72 (p=0.02)</td>
</tr>
<tr>
<td>SMART-COP</td>
<td>0.85 (p=0.03)</td>
<td>0.85 (p=0.04)</td>
<td>0.88 (p=0.01)</td>
<td>0.83 (p=0.001)</td>
</tr>
<tr>
<td>SMART-COP</td>
<td>0.88 (p=0.07)</td>
<td>0.85 (p=0.053)</td>
<td>0.81 (p=0.01)</td>
<td>0.82 (p=0.002)</td>
</tr>
</tbody>
</table>

Conclusions: The rate of all adverse outcomes increased directly with increasing risk class in all scores. The new gravity scores (particularly the SCAP score) appear to have a higher DP to all adverse events in our study.

P2470

Potential value of an ELISPOT interferon gamma release assay as a diagnostic tool in Q fever infection

Gijs Limonard 1, John Bouwman 2, Anita Asscheman 2, Steven Thijsen 2, Bart Vlaminkx 3, Aik Bossink 3, 1Pulmonary Diseases, Diakonessenhuis, Utrecht, Netherlands; 2Medical Microbiology & Immunology, Diakonessenhuis, Utrecht, Netherlands; 3Medical Microbiology & Immunology, St. Antonius Hospital, Nieuwegein, Netherlands

Rationale: Q fever is an emerging zoonosis in the Netherlands, atypical pneumonia being the most common clinical manifestation. Acute disease is followed by resolution in the majority of cases, 10-20% will exhibit the post-Q fever fatigue syndrome (QFS) and 1-5% of patients progresses to chronic disease. Current tests measuring humoral immune response to Coxella burnetii have considerable limitations in diagnosing these different outcomes. We conducted an exploratory study to determine T cell response to C. burnetii specific antigens using an ELISPOT assay.

Methods: An in-house developed Coxella ELISPOT interferon gamma release assay, using both phase I and II antigens was performed on blood samples of 7 Q fever patients.

Results: Coxella ELISPOT was performed for 7 patients reevaluated after acute Q fever and 2 chronic Q fever patients (n=1 newly diagnosed, n=1 after completion of treatment). Mean (± SD) spot count for reevaluated patients was 11.5±5 (range 1-42) for phase I and 31.15± (range 1-120) for phase II. One patient was diagnosed with QFS and had the highest spot count in both phase I (42 spots) and phase II (120 spots). The newly diagnosed Q fever patient (male, 64 years) showed a predominant responsiveness to phase I antigen (spot count Phase I 209, Phase II 177). The other chronic Q fever patient (male, 67 ys) had finished a 18 month antibiotic treatment for Q fever endocarditis. Coxella ELISPOT showed a marked T cell unresponsiveness to both phase I (3 spots) and phase II antigens (0 spots).

Conclusion: Different clinical Q fever outcomes are associated with marked differences in Coxella ELISPOT results.

P2472

Bacterial co-infections in community acquired pneumonia cases of 2009 pandemic-influenza A (H1N1) virus in Spain

Catalina Cillóniz, Rosario Menendez, Santiago Ewg, Eva Polverino, Miquel Ferrer, Albert Gabarrus, Maria Angeles Marcos, Josep Mena, Antoni Torres.

Infectious Disease, Hospital Clinic of Barcelona, Barcelona, Spain Pneumology, Instituto Clinic del Tórax, Hospital Clinic of Barcelona - Institut d’Investigacions Biomèdiques August Pi y Sunyer (IDIBAPS), University of Barcelona (UB) – SGR 911 - Ciber de Enfermedades Respiratorias (CIBERES) Barcelo Pneumology, Hospital Clinic of Barcelona - Institut d’Investigacions Biomèdiques August Pi y Sunyer (IDIBAPS), University of Barcelona (UB) – SGR 911 - Ciber de Enfermedades Respiratorias (CIBERES) Barcelo Pneumology, Hospital Clinic of Barcelona - Institut d’Investigacions Biomèdiques August Pi y Sunyer (IDIBAPS), University of Barcelona (UB) – SGR 911 - Ciber de Enfermedades Respiratorias (CIBERES) Barcelona Pneumology, Clinica de Pneumologia y Neumologia de la Hospital Clinic de Barcelona - Institut d’Investigacions Biomèdiques August Pi y Sunyer (IDIBAPS), University of Barcelona (UB) – SGR 911 - Ciber de Enfermedades Respiratorias (CIBERES) Barcelona

Background: Pandemic influenza A (H1N1) virus in Spain included a high number of pneumonia cases. We determined the incidence of bacterial co-infection and analysed risk factors associated with bacterial co-infection in cases of 2009 pandemic-influenza A (H1N1) virus in Spain.

Methods: Prospective observational study of hospitalized patients with influenza A (H1N1) virus associated pneumonia. We compared cases with and without bacterial co-infection and analysed risk factors associated with bacterial co-infection and mortality in a multivariate analysis

Results: We studied 128 patients of whom 42 (33%) presented bacterial co-infection. The most frequently bacterial pathogen was S. pneumoniae 26 (62%) followed by H. influenzae 12 (29%) and Staphylococcus aureus 2 (5%). Independent predictors of bacterial co-infection were COPD comorbidity (OR 9.6; 95% CI 1.22-5.51, p=0.01), duration of admission (AOR 1.09 95% CI 1.04-1.13, p=0.001), duration of antibiotic therapy (AOR 1.14 95% CI 1.04-1.27, p=0.001).

Conclusion: H1N1 patients with bacterial co-infection showed worse clinical presentation as assessed by PSI, trend to worse renal function and increased need of mechanical ventilation. Nevertheless, the mortality rate was similar in both groups. COPD is a strong, independent risk factor of bacterial co-infection, but is not associated with increased mortality in H1N1 patients.
P2473
Characteristics and predictors of mortality in patients with pleural infection
Rebecca Taylor1, Stephen Murphy1, Alice Melville1, 1Respiratory Department, Sunderland Royal Hospital, Sunderland, Tyne and Wear, United Kingdom; 2Pulmonology, Wansbeck Hospital, Ashington, Northumberland, United Kingdom

Background: Pleural infection is increasing in incidence and causes significant morbidity and mortality. Many UK patients are cared for by non-respiratory teams.

Aims of study: To characterise patients with pleural infection, assess standards of care and identify clinical variables predictive of outcome.

Methods: Case records of patients diagnosed with pleural infection were reviewed with reference to British Thoracic Society guidelines. Pleural infection was confirmed if pleural fluid was purulent or turbid with pH<7.20 and/or positive bacterial culture, with associated systemic features of infection.

Results: 45 cases were included, 69% male, median age (IQR) 72 (46-78) years. 36% had a recent pleural procedure prior to developing infection. 36% were immunosuppressed, 13% had an underlying malignancy. 73% were under respiratory care. Inpatient mortality was 20%. Outcomes varied between respiratory and non-respiratory care: Mortality: 9% v 50% OR (95% CI) 10.0 (0.019-0.51) p=0.006; Drain-related complications: 27% v 58% OR 0.26 (0.06-1.06) p=0.056; Length of stay: mean (SD) 18.3 (20.1) v 35.3 (28.8) days HR 4.16 (1.59-10.9) p=0.0035. On univariate analysis mortality was associated with increased age, high urea, low serum albumin and low pleural fluid protein level. On multivariate analysis mortality was predicted by age≥75 years OR 10.7 (1.75-66.6) p=0.010, albumin <30mg/dl OR 6.41 (4.17-35.7) p=0.032, and non-respiratory care OR 6.7 (1.07-42.4) p=0.041.

Conclusion: Pleural infections are often iatrogenic and associated with malignancy or immunosuppression. Complications with chest drains are common. Mortality is highest in older patients with low albumin. Patients under respiratory care have better outcomes.

P2474
Multicentric pneumonia caused by intravenous substances, a series of three cases
Raluca Geamalinga, Dragos Zaharia, Stefan Dumitrache-Rujinski, Miron Bogdan. Pneumology 4, National Institute of Pneumology “Marius Nasta”, Bucharest, Romania

Background: In the past 2 years, we have encountered in our clinic an increased number of patients with multicentric pneumonia related to non-heroin intravenous drug use (so-called “ethnobotanic substances”), probably favourised by the low cost and legal status of these substances. We present three clinical cases with this drug use (especially heroin), recently using ethnobotanic powders intravenously, probably favorised by the low cost and legal status.

The clinical cases: The three patients had a very similar clinical picture: poor social background (disorganized families, homeless, prisoners), history of intravenous drug use (especially heroin), recently using ethnobotanic powders intravenously, positive HCV, negative HIV and VHB, multiple bilateral lung opacities on X-Ray, similar symptomatology (fever, dyspnea, cough with mucopurulent sputum), tricuspid valve endocarditis (confirmed by echocardiography). The bacteriological exam (hemocultures and sputum) were negative probably related to the empirical antibiotic usage prior hospitalisation. Two patients improved slowly with antibiotic treatment. One critically ill patient died with septic shock and multiple organ insufficiency.

Conclusions: The increased number of cases with multicentric pneumonia and endocarditis related to the usage of the ethnobotanic drugs of legal status reveal their harmful effect when used intravenously.

P2475
Slow recovering of altered autonomic cardiac control in patients with community acquired pneumonia
Rustem Zulkarneev1, Shamilt Zagidullin1, Naufal Zagidullin1, Veronika Bakirova2, 1Internal Diseases (Propedeutics), Bashkortostan State Medical University, Ufa, Bashkortostan, Russian Federation; 2Pulmonology, Clinical Hospital No. 21, Ufa, Bashkortostan, Russian Federation

Altered autonomic cardiac control is associated with severe arrhythmia, heart insufficiency and sudden death.

Aim: To evaluate recovering of autonomic cardiac control in patients with community acquired pneumonia (CAP).

73 patients with nonsevere CAP (nCAP) and 14 patients with severe CAP (sCAP) were studied at the day of hospital admission and in follow-up periods of 3 and 14-16 days after admission. Controls (CG) included 48 healthy subjects. Autonomic cardiac control was estimated via analysis of fluctuations of consecutive RR intervals. The increased number of cases with multicentric pneumonia and endocarditis related to the usage of the ethnobotanic drugs of legal status reveal their harmful effect when used intravenously.

Conclusions: Autonomic cardiac control is significantly altered in patients with CAP. Predicted recovery period may take up to 6 months in patients with severe CAP and extreme physical workload should be limited due to increased cardiovascular risk.