## 272. New aspects in prevention and treatment of community-acquired pneumonia and lower respiratory tract infections

**P2496**

**Late-breaking abstract: Clinical and radiological characteristics of cytomegalovirus pneumonia in immunocompromised patients**

Siwasak Juthong, Apinya Jirarat. *Department of Medicine, Faculty of Medicine, Prince of Songkla University, HatYai, Songkhla, Thailand*

Cytomegalovirus (CMV) has long been recognized as a cause of pneumonia in the immunocompromised host. There are few studies reported the correlation of clinical, and pulmonary infiltration with histopathological evidence of CMV pneumonia.

**Objective:** To define the clinical, radiological features CMV pneumonia diagnosed by bronchoscopy with transbronchial lung biopsy.

**Materials and methods:** The medical records of CMV pneumonia patients in Songklanagarind hospital between 1 January 2000 and 31 December 2009 were reviewed. CMV pneumonia was confirmed by the identification of cytomegalic inclusion bodies and surrounding tissue inflammation without other pathogen in lung tissue biopsy specimens.

**Results:** Thirty-one CMV pneumonia patients were identified. Twenty –two patients had HIV-positive with a mean CD4 cell count of 18 cells/mL (1-49 cells/mL) and 8 patients had a history of corticosteroid use. All patients of CMV pneumonia had dyspnea, 90% had fever and 71% had cough. The onset of symptoms varied from acute onset in 38%, subacute onset in 25% to chronic onset in 35%.The most chest radiographic finding was bilateral symmetrical infiltration (53%), including patchy and linear infiltration. Focal lesions were detected in 47% of patients exclusively in middle and lower lobe. The hospital mortality rate was 45%.

**Conclusion:** Most of patient with CMV pneumonia had dyspnea, fever and cough. Bilateral symmetrical infiltration is the most chest radiographic finding. CMV pneumonia was seen in severely immunosupressed HIV-positive patients and had a high mortality rate.

**P2497**

**Late-breaking abstract: Relationship of asthma to outcome in influenza A/H1N1 2009 infection: FLU-CIN cohort study**

Malcolm Semple[1], Wei Shen Lim[2], Puja Myles[3], Joanne Enstone[3], Peter Openshaw[4], Robert Read[5], Bruce Taylor[6], James McMenamin[7], Barbara Bannister[8], S.J. Brett, Karl Nicholson[9], Jonathan Nguyen-Van-Tam[3]. *[1]Women's and Children's Health, University of Liverpool, Liverpool, United Kingdom; [2]Respiratory Medicine, Nottingham University Hospital, Nottingham, United Kingdom; [3]Epidemiology and Public Health, University of Nottingham, Nottingham, United Kingdom; [4]Centre for Respiratory Infection - National Heart and Lung Institute, Imperial College London, London, United Kingdom; [5]Infection and Immunity, University of Sheffield, Sheffield, United Kingdom; [6]Intensive Care Medicine, Portsmouth Hospitals NHS Trust, Portsmouth, United Kingdom; [7]Public Health Medicine, Health Protection Scotland, Glasgow, United Kingdom; [8]Infectious Diseases, Royal Free Hampstead NHS Trust, London, United Kingdom; [9]Infectious Diseases, University of Leicester, Leicester, United Kingdom*

**Introduction:** Asthma was the commonest co-morbid illness in patients admitted to hospital with influenza A/H1N1. Yet patients with asthma were half as likely to die or require admission to level 2 (high dependency) or level 3 (intensive) care.

**Hypothesis:** Asthma, rather than associated co-morbidities or treatments such as the use of steroids, is an independent factor for improved outcomes in influenza A/H1N1.

**Methods:** Between April 2009 and January 2010, FLU-CIN collected clinical, epidemiological and outcome data on patients with confirmed influenza A/H1N1 admitted to 75 UK hospitals.

We studied 1520 patients, of whom 480 (31.6%) were <16yrs. Asthma was the commonest co-morbid illness affecting 385 (25.3%) patients.

**Findings:** Patients with asthma had higher rates of dyspnoea, need for supplemental oxygen and severe respiratory distress than patients who did not have asthma but were significantly less likely to die or require level 2 or 3 care (11.2% vs. 19.8%, OR 0.51, 95% CI 0.36 to 0.72). Co-morbid illnesses were more frequent in patients with asthma (22.6% vs. 7.6%). There was no difference in the proportions with pneumonia (17.1% vs. 16.6%).

The association of asthma with less severe outcome was unaffected by age, presence of co-morbidities, in-hospital anti-viral and/or antibiotic use. Adjusting for prior use of inhaled steroid changed the association with severe outcome by over 10% (OR 0.63, 95% CI 0.42 to 0.94). Adjusting for "delayed admission >4 days" had a similar effect (OR 0.63, 95% CI 0.42 to 0.95).

**Conclusion:** In multivariate analysis, the combination of prior inhaled steroid use and prompt admission to hospital (≤4 days) explained the association of asthma with less severe outcome.

**P2498**

**Experimental rhinovirus infection in moderate asthma**

David Jackson, Maria-Belen Trujillo-Torralbo, Jerico Del-Rosario, Julia Aniscenko, Sebastian Johnston. *National Heart and Lung Institute, Imperial College London, London, United Kingdom*

**Background:** Rhinovirus (RV) is the most common cause for asthma exacerbations. Underlying mechanisms are poorly understood. A human model of experimental infection with RV has been introduced however published studies have thus far only recruited mild asthmatics. In order to be more representative of those who experience virus-induced exacerbations there is a need to establish the safety of this model in moderate asthma.
**Aim:** To assess the safety of using the RV challenge model in subjects with moderate asthma treated with inhaled corticosteroids.
**Methods:** Six subjects with moderately severe atopic asthma requiring maintenance inhaled corticosteroids were infected with RV16. Nasal lavage (NL) and clinic spirometry was performed on days 0,2,3,4,5,7,10. Symptom scores were recorded daily throughout the study. Clinical infection was confirmed using a combination of symptom scores, demonstration of RV16 RNA by RT-PCR in nasal lavage and at least a 4-fold increase in RV16 specific antibody titres on day 42.
**Results:** All 6 subjects developed symptoms of a common cold 24-48 hours prior to an increase in lower respiratory symptoms. This was accompanied by a drop in morning FEV1 (mean fall of 25.6%). Whilst all subjects increased their use of bronchodilator, no subjects required oral corticosteroid therapy. RV16 was demonstrated in NL in all subjects.
**Conclusions:** In this pilot study infection with RV16 in moderate asthma was well-tolerated resulting in a mild exacerbation. No unexpected adverse events or requirement for oral steroids occurred. The use of RV challenge in moderate asthma therefore appears safe. Results of future studies using this group of patients will better reflect those individuals with the greatest burden of disease.

**P2499**

**Serum microRNA signatures identified in a genome-wide profiling predict the mortality of patients with sepsis**

Lixin Xie[1], Huijuan Wang[2]. [1]*Respiratory Medicine, Chinese PLA General Hospital, Beijing, China;* [2]*Medical College, Nankai University, Tianjin, China*

**Purpose:** Serum miRNAs are present and stable, reproducible, and consistent among individuals in the serum and plasma of humans and other animals. And they can be fingerprints of different diseases. We used genome-wide serum miRNA expression profiling analysis to investigate the role of serum miRNA in predicting prognosis of sepsis.
**Patients and methods:** According to the 28-days mortality, Solexa sequencing followed by individual quantitative reverse transcriptase polymerase chain reaction (qRT-PCR) assays was used to test the difference in levels of serum miRNAs between survivors and nonsurvivors. There were 9survivors and 9 nonsurvivors matched by age, sex, and stage for the early detection. The detected serum miRNAs then were validated in 92 sepsis patients (39 survivors and 53 nonsurvivors) and 24 healthy controls.
**Results:** Twelve serum miRNAs were found to be altered more than two-fold by Solexa sequencing between survival and nonsurvival group, qRT-PCR was preformed in 6 miRNAs (miR-206, miR-378, miR-223, miR-15b, miR-15a and miR-16) according to the previous studies. MiR-223 ($p$=0.002<0.01), miR-15b ($p$=0.008<0.01) and miR-16 ($p$=0.009<0.01) were significant difference between those two groups. Then APECHEIIscore, SOFA score, CRP, PCT of those patients combined with the three miRNAs extend asymptotically to logistic regression. Mutiple logistric regression anlysis showed that miR-223, APECHEIIscore and SOFA score were significantly associated with the mortality of sepsis patients.
**Conclusion:** MiR-223,miR-15b and miR-16 from the serum may serve as a noninvasive predictor of the mortilty of sepsis patients.

**P2500**

**Reduction of oxidative stress in successfully treated patients with community acquired pneumonia (CAP), as measured by redox status of coenzyme Q10 (%CoQ-10)**

Kojiro Honda[1], Hiroo Wada[1], Masaki Tamura[1], Saori Takata[1], Takashi Koide[1], Masuo Nakamura[1], Haruyuki Ishii[1], Daisuke Kurai[1], Takeshi Saraya[1], Kenji Fujii[2], Shin-Ichi Hagiwara[4,5], Yorihiro Yamamoto[3], Hajime Goto[1]. [1]*Department of Respiratory Medicine, Kyorin University School of Medicine, Tokyo, Japan;* [2]*Functional Food Ingredient Division, Kaneka Corporation, Tokyo, Japan;* [3]*School of Bioscience and Bioengineering, Tokyo University of Technology, Tokyo, Japan;* [4]*Health Center, Honda Engineering, Tochigi, Japan;* [5]*Department of Pulmonary Medicine, Jichi Medical School, Tochigi, Japan*

Community acquired pneumonia (CAP) causes exacerbation of various respiratory diseases, such as chronic obstructive pulmonary disease (COPD), due to probably enhancement of oxidative stress. The redox status of coenzyme Q-10 (%CoQ10) is a good indicator of oxidative stress, as revealed in various diseases including COPD (Wada H et al., ERS 2006) and liver diseases and neurologic diseases. However, no data has addressed whether%CoQ-10 increased or not in CAP patients.
**Materials & methods:** Diagnosis of CAP was made on the symptoms and confirmed by the radiologic and laboratory examination (CRP, leukocyte count, SAA). All the patients (n=7) were treated with new-generation quinolone. Plasma was extracted from blood samples at day 1 before the antimicrobial treatment, and either at day 8 or day 15, after treatment. Both oxidized and reduced forms of coenzyme Q-10 were measured and%CoQ-10 was defiened as the percentage of plasma level of the oxidized form to total coenzyme Q-10.
**Results & discussion:** All the patients enrolled were successfully treated, as their symptoms improved, together with the results of laboratory and radiologic examination.%CoQ-10 before treatment was 39.1±12.0, whilst%CoQ-10 became after treatment significantly lower in the plasma value (p=0.003); 22.7±6.6. Thus, our study demonstrated that oxidative stress was reduced, as CAP was successfully treated.
Our result indicated that%CoQ-10 can well indicate the oxidative stress burden on CAP patients.

**P2501**

***Nontypeable* haemophilus influenzae (NTHi) leads to caspase-1-dependent upregulation of interleukin 1-beta (IL-1β) in respiratory cells and human lung tissue – A role of the "inflammasome" in respiratory tract infections**

Johannes Rotta detto Loria[1], Kristina Rohmann[1], Torsten Goldmann[2], Jan Rupp[3], Daniel Droemann[1], Klaus Dalhoff[1]. [1]*Medical Clinic III, University of Luebeck, Luebeck, Germany;* [2]*Research Center Borstel, Clinical and Experimental Pathology, Borstel, Germany;* [3]*University of Luebeck, Insitute for Medical Microbiology and Hygiene, Luebeck, Germany*

The role of the inflammasome in pulmonary inflammation due to respiratory infections is still not well understood. As the inflammasome is a heterogeneous group of proteins, we focused on one obligatory component, caspase-1. We investigated if inhibition leads to a decrease of IL-1β after infection with NTHi and if it induces other proinflammatory cytokines like tumor necrosis factor-alpha (TNF-α) and CXCL2.
Murine alveolar macrophages (RAW 264.7) and human lung tissue were stimulated *in-vitro* with NTHi $10^6$cfu/ml for 24-48h. A caspase-1 inhibitor (CI) was added 8h after infection. Supernatant and cells were collected for ELISA, PCR and Western Blot analysis.
Cell and tissue culture experiments showed a significant induction of IL-1β-production after NTHi-*in vitro*-infection (RAW: Med 24h and 48h <15.6±0pg/ml vs. NTHi 24h 408±64pg/ml and NTHi 48h 717±72pg/ml, both n=6, p<0.01). Caspase-1 was activated 60min after infection. Inhibition of caspase-1 significantly decreases IL-1β levels after 24h (NTHi 24h 408±64pg/ml vs. NTHi+CI 24h 174±12pg/ml, n=6, p<0.01) and 48h of NTHi infection (NTHi 48h 717±72pg/ml vs. NTHi 48h 432±49pg/ml, n=6, p<0.01). PCR data confirmed the inhibitory effect. We did not observe significant changes in TNF-α and CXCL2 release after caspase-1 inhibition what means that these cytokines are not affected by inhibiting caspase-1.
These results indicate that caspase-1-mediated IL-1β-upregulation is an important mechanism of NTHi-induced inflammation in pulmonary tissues and might be a central mediator in the pathogenesis of respiratory tract infections.

**P2502**

**Joint use of specific and nonspecific means for prevention of pneumonia in recruits**

Pavel Ogarkov[1], Sergey Zhogolev[1], Konstantin Jogolev[2]. [1]*Epidemiology, Military Medical Academy, St. Petersburg, Russian Federation;* [2]*Immunology and Microbiology, Military Medical Academy, St. Petersburg, Russian Federation*

**Background:** Pneumonias in military servicemen develop frequently beside a respiratory viral infection in subjects with lowered resistance. So, besides pneumococcal vaccine it is expediently to use immunocorrecting drugs and antiviral agents for prevention pneumonia.
**Aim:** To study the efficacy of combined use of pneumococcal vaccine and supplementary prevention means.
**Methods:** Five groups of military servicemen numbering 120 to 240 persons received, in addition to pneumococcal vaccination, one of preventive means. Persons of the 1st group received influenza virus vaccine, the 2nd group received imudon, the 3rd group bronchomunal, the 4th group cytovir-3, the 5th group arbidol during 4-10 days. Comparative groups were in the same conditions as experimentation groups and received pneumococcal vaccine only.
**Results:** In 1 and 3 months after the onset of agents' administration in all the groups in which supplementary preventive agents were administered together with pneumococcal vaccine, an incidence of pneumonia and acute respiratory infections was from 1.6 to 3.5 times lower than in the comparative groups. Thus, one and three months after imudon administration, its efficacy index against pneumonia was 3.5 and 2.2 respectively. The efficacy of supplementary agents was most marked during the first month following administration onset.
**Conclusion:** To prevent pneumonia in recruits, it is a good practice to use, together with pneumococcal vaccine, influenza virus vaccine, vaccinal immunomodulating agents (such as imudon, bronchomunal), immunocorrecting agents (such as cytovir-3), antiviral medications (such as arbidol) in first days following call-up.

**P2503**

**The use of influenzal (IV) and pneumococcal (PV) vaccine in patients, staff and visitors at a university hospital in two periods**

Pablo Fescina, Vanina Martin, Fernanda Ramundo, Gustavo Lonegro, Ileana Palma, Carlos M. Luna. *Pulmonary Diseases Division, Hospital de Clinicas, Universidad de Buenos Aires, Buenos Aires, Argentina*

**Aims:** To determine the trend of IV and PV coverage for the at risk population comparing the years 2001 and 2010.
**Methods:** 1191 adults (507 in 2001 and 684 in 2010), including patients, relatives, health care workers, medical students and hospital employees, were interviewed at the hospital. They were asked about age, medical history, their knowledge about IV and PV and vaccination history. At risk population was considered according with the current national guidelines.
**Results:** Among the people with indications for IV, it was received by 50.1% in 2001 and 63.1% in 2010 ($p < 0.001$) and PV by 11.8% in 2001 and 20.7% in 2010 ($p = 0.003$).

National Guidelines in Argentina for IV and PV

| Indication | IV | PV |
|---|---|---|
| Age >65 | YES | YES |
| Pulmonary | YES | YES |
| Cardiac | YES | YES |
| Hepatic | YES | YES |
| Renal | YES | YES |
| Diabetes | YES | YES |
| Immuno Deficience/Compromise | YES | YES |
| Pregnancy | YES | NO |
| Health Care Worker | YES | NO |

The trend of vaccination rate improved significantly for few indications; for IV in health care workers (21.2% vs. 77.7%, $p<0.001$) and in people with hepatic comorbidity (9.4% vs. 46.1%, p=0.017) and for PV only for those with pulmonary comorbidity (17.7% in 2001 vs 51.0% in 2010, p=0.004).
Analyzing 2001 and 2010 together, IV rate was higher in retired people >65 years old included in a social security program (PAMI) consisting in intensive advertising, free delivery and administration; than in those not included in such program (62.1% vs. 46.4%, p=0.001).
**Conclusions:** Vaccination coverage remains low, particularly for PV. Improvement of IV and PV require better awareness, changes in clinical practice, deliver mechanisms and surveillance to assess the progress.

**P2504**

**Procalcitonin in pleural fluid: A new tool for the diagnosis of empyema and parapneumonic pleural effusions?**

Estelle Hoguet[1], Claire Andrejak[1], Anne Marie Bourgeois[2], Charles Dayen[3], Vincent Jounieaux[1], Youcef Douadi[3]. *[1]Pneumologie, CHU, Amiens, France, Metropolitan; [2]Laboratoire de Biologie, CHU, Amiens, France, Metropolitan; [3]Pneumologie, CH, Saint Quentin, France, Metropolitan*

**Background:** Few data are available about the usefulness of procalcitonin (PCT) measurement in pleural effusions. Results are controversial with 3 studies with negative results and 2 with promising results in parapneumonic pleural effusions. No study has assessed the value of PCT in pleural liquid.
**Methods:** We conducted a study to assess the reliability and the reproducibility of PCT measurements in pleural fluid and to determinate its performance for the diagnosis of parapneumonic pleural effusions through ROC curves.
**Results:** We measured PCT in the pleural liquid of 35 patients (550 mesures) with pleural effusion (3 transudates in acute heart failure, 13 metastatic pleural effusion, 17 empyema and parapneumonic effusion and 2 exudates due to an other cause). PCT values were low in 16 cases (< 0.18 ng/ml), medium in 10 cases (between 0.18 and 1 ng/ml) and high in 9 cases (> 1 ng/ml). Reliability: thirty consecutive measurements of the same sample showed a low variation coefficient (< 4%) for medium and high PCT values. A similar variation coefficient was found when PCT was tested in blood. Reproducibility: samples were also kept at 4°C and were tested every day during 5 days with a variation coefficient less than 5% for medium and high PCT values, and less than 4% for the first 3 days. For the diagnosis of empyema or parapneumonic pleural effusions, the ROC curve determined a 0.183 ng/ml PCT cut-off, with a 80% sensitivity and specificity.
**Conclusion:** PCT could be considered as a useful tool in diagnosis of empyema and parapneumonic pleural effusion with a 80% sensitivity and specificity for a 0.183 ng/ml cut-off. Furthers studies are required to confirm these data.

**P2505**

**Hyaluronic acid levels are increased in parapneumonic pleural effusions**

Theodora Zaga, Demosthenes Makris, Irene Tsilioni, Smaragda Oikonomidi, Theodoros Kyropoulos, Anastasios Damianos, Konstantinos Gourgoulianis. *Department of Respiratory Medicine, University of Thessaly, School of Medicine, University Hospital of Larissa, Larissa, Greece Department of Respiratory Medicine, General Hospital "Amalia Fleming", Athens, Greece*

**Background:** Hyaluronic acid (HA) is a component of extracellular matrix and may play a role in the pleural inflammation which is implicated in parapneumonic effusions.
**Aim:** The aim of the current study was to investigate HA levels in serum and pleura in patients with parapneumonic effusions.
**Methods:** We prospectively studied pleural and serum levels of HA in 58 patients with pleural effusions due to infection (complicated and uncomplicated parapneumonic effusions), carcinomatous effusions and transudative effusions due to congestive heart failure. In addition to HA, TNF-a and IL-1b levels were determined in pleural fluid and serum by ELISA.
**Results:** The median±SD HA levels (pg/ml) in pleural fluid of patients with complicated effusions (39.058±11.208) were significantly increased ($p<0.005$), compared to observed those with uncomplicated parapneumonic effusions (11.230±1.969), carcinomatous effusions (10.837±4.803) or congestive heart failure (5.392±3.133). There was no correlation between pleural fluid and serum HA values. Pleural fluid TNF-a levels (146±127) and IL-1b levels (133.4±156) were significantly higher in patients with complicated parapneumonic effusions compared to patients with other types of effusion ($p<0.05$). No significant association between HA and TNF-a or IL-1b was found.
**Conclusion:** HA may play a significant role in the inflammatory process which characterizes exudative infectious pleuritis. Further investigation might reveal whether HA is a useful marker in the management of parapneumonic effusions.

**P2506**

**Compliance with CURB-65 score and the consequences of no implementation**

Qi Guo[1], Hai-Yan Li[2], Yi-Ping Zhou[1], Ming Li[1], Xiao-Ke Chen[1], Hui Liu[1], Hong-Lin Peng[1], Hai-Qiong Yu[1], Xia Chen[1], Nian Liu[1], Li-Hua Liang[3], Qing-Zhou Zhao[3], Mei Jiang[4]. *[1]Department of Respiratory Medicine, Affiliated Futian Hospital, Guangdong Medical College, Shenzhen, China; [2]Department of Primary Care, Affiliated Futian Hospital, Guangdong Medical College, Shenzhen, China; [3]Department of Radiology, Affiliated Futian Hospital, Guangdong Medical College, Shenzhen, China; [4]Guangzhou Institute of Respiratory Diseases (State Key Laboratory of Respiratory Diseases), First Affiliated Hospital, Guangzhou Medical University, Guangzhou, China*

**Background:** The CURB-65 score is a simple well validated tool for the assessment of severity in community-acquired pneumonia (CAP). Whether it is used routinely is unknown. The aim of this study was to determine the frequency of use of the score in routine hospital practice and the consequences of no implementation.
**Methods:** A retrospective analysis of data from 1230 patients with CAP in a Chinese affiliated hospital of a medical college was performed.
**Results:** None of the patients with CAP had CURB-65 score applied at admission. 716 (58.2%) patients who had a CURB-65 score of 0 were unnecessarily hospitalized. 402 (32.7%) patients who had a CURB-65 score of 1 might be admitted unnecessarily. 14 (1.2%) patients who had a CURB-65 score of 3 or more were not admitted to critical care unit. The unnecessary total annual costs for managing CAP with CURB-65 score of 0 and 1 were estimated at $ 94 512 and $ 66 410.4 in the hospital, respectively.
**Conclusions:** Non-compliance with the CURB-65 scoring tool in patients with CAP was observed in routine hospital practice. No implementation of the measurement of the score incurred inappropriate hospitalization and unnecessary costs.

**P2507**

**Viral vs bacterial community-acquired pneumonia: Radiologic features**

Alejandro Robles[1], Anna San Gil[2], Vanesa Pascual[2], Esther Calbo[2], Eugenia Viladot[2], Susana Benet[2], Bienvenido Barreiro[1], Eva Cuchi[3], Juan Torres[4], Lydia Canales[4], Jose Angel De Marcos[4], Josefa Perez[3], Javier Garau[2]. *[1]Pneumology Department, Hospital Universitari Mútua Terrassa, Terrassa, Barcelona, Spain; [2]Internal Medicine Department, Hospital Universitari Mútua Terrassa, Terrassa, Barcelona, Spain; [3]CatLab, CatLab, Terrassa, Barcelona, Spain; [4]Radiology Department, Hospital Universitari Mútua Terrassa, Terrassa, Barcelona, Spain*

**Background:** Radiologic findings in the viral community-acquired pneumonia (CAP) are poorly characterized.
**Aims and objectives:** To describe and compare the radiologic findings of patients with bacterial (BP) vs those with viral pneumonia (VP).
**Methods:** Adults with CAP admitted for at least 24h in a 500-bed acute care hospital from November 2009 to October 2010 were included. Diagnostic methods were blood and sputum cultures, antigen urinary detection, sputum analysis by polimerase chain reaction for 4 respiratory bacteria and 15 respiratory viruses. Initial chest radiographs (CR) were reviewed by a team of radiologists. We defined consolidation as not well-defined opacities with aerial bronchogram, multifocal distribution as more than 1 separated areas affected and diffuse distribution as >60% of the parenchyma affected.
**Results:** 125 patients with CAP were included. 43 (34.4%) were BP, 23 (18.4%) VP and 21 (16.8%) co infection (BP and VP). 40.3% of patients had bilateral infiltrates. Consolidation pattern was seen in 90.3%; the rest presented with interstitial affectation. 47.2% presented multifocal distribution, 43.4% focal distribution and 9.4% diffuse distribution. Pleural effusion was seen in 14.1%. No statistical significant differences were found in the comparison of the CR according to the etiology (BP vs VP).
**Conclusions:** Viral CAP presented frequently with a consolidation in the initial CR. Unilateral, multifocal and consolidation pattern without pleural effusion was

the most frequent radiologic finding. CR is not a good tool to discriminate between BP and VP.

**P2508**

**Metapneumovirus pneumonia in allogeneic stemcell transplant recipients**

Adrian Egli[1], Jörg Halter[1], Dominik Heim[1], Martin Stern[1], Christoph Bucher[1], Hans Hirsch[2], Michael Tamm[3]. *[1]Clinic of Hematology, University Hospital of Basel, Basel, Switzerland; [2]Clinic of Microbiology, University Hospital of Basel, Basel, Switzerland; [3]Clinic of Pulmonary Medicine and Respiratory Cell Research, University Hospital of Basel, Basel, Switzerland*

Infectious and noninfectious pulmonary complications are frequent in allogeneic stemcell transplant recipients (SCT) and associated with a high morbidity and mortality. Metapneumovirus (MPV) has recently been recognised to cause lethal infections in immunocompromised patients. Following an index case with fatal outcome we included PCR for Metapneumovirus in the routine work-up of BAL performed in hematological patients with pulmonary symptoms. We analysed the clinical presentation and outcome of 8 allogeneic stemcell transplant recipients with a median age of 45 year observed over a period of 12 months. Median Time to pulmonary MPV infection was 473 days after SCT. 6 of 8 patients were under immunosuppressive therapy for GvHD and 4 of them had biopsy proven bronchiolitis obliterans. All patients suffered from cough and 7/8 from fever. CT scan of the chest revealed a groundglas pattern in all but one cases. There were nodules in five cases and alveolar-interstitial infiltrates in also 5 cases. Enlarged lymphnodes were only present in one patient. In one patient there was concomitant infection with moraxella catharalis. Two patients showed viral double infection in the BAL (MPV/coronavirus; MPV/rhinovirus). All patients were hospitalizid because of marked symptoms or hypoxemia. Anemia was the most frequent side-effect of antiviral treatment. 7 out of 8 patients recovered. The patient who died had developed MPV pneumonia within one month following SCT.
**Conclusion:** Metapneumovirus pneumonia is not uncommon following allogeneic stemcell transplantation. Typical clinical features include fever, cough and a groundglas pattern on chest CT scan. Most patients recover under treatment with immunoglobulins and ribavarin.

**P2509**

**Non-tuberculous infections in patients with TNF-alpha-antagonist treatment**

Tulin Cagatay, Aysen Erer, Sinem Karaosman, Gülfer Okumus, Nuray Oktay, Bahar Ozcelik, Penbe Cagatay, Zeki Kilicaslan, Ziya Gulbaran. *Pulmonology, Istanbul Medicine Faculty, Istanbul, Turkey*

**Introduction:** In recent years the use of TNF antagonist drugs for many diseases such as rheumatological diseases has increased. As a complication of these treatment infection tendencies mainly tuberculosis is increasing. The purpose of this study in patients receiving anti-TNF therapy is to assess the frequency of infection other than tuberculosis.
1220 patients receiving anti-TNF therapy have been referred to our clinic from rheumatology and other clinics. In 5 years of follow-up, 123 (%10) (79 women, 44 men) with non-tuberculous infections were detected.
50 (40.7%) of patients receiving anti-TNF therapy with nonspecific infections had rhemotoid arthritis, 42 (34.1%) of them had anklozan spondylitis, 31 (25.2%) of them had other diseases.In this non-tuberculous infections group 38.1% (n=45) of the patients were using infliximab, 16.9% (n=20) of them were using adalimubab and 45% (n=53) of them were using etanercept. The patients receiving anti-TNF drugs had upper respiratory tract infection in 63.4% (n=78), had pneumonia in 6.5% (n=8), had acute bronchitis in 2.4% (n=3). One case of eye infection, one chicken pox, one urinal tract infection, one tooth infection and one soft tissue infection were detected.In an asthmatic patient also frequent infective attacks were seen. Relapses were seen at nine patients who had upper respiratory tract infection. Focus of infection couldn't be identified at twenty-nine patients 29 (23.6%).
In conclusion, infections at the patients receiving anti-TNF therapy were not serious and they were mostly upper respiratory tract infections. Our study indicates that non-tuberculous infections are not frequent despite the absence of control group for comparing.

**P2510**

**Do prognostic factors help physicians in predicting legionellosis' respiratory complications?**

Sonia Seghezzi[1], Marta Di Pasquale[2], Caterina Bonino[1], Elena Prina[1], Stefano Aliberti[3], Francesco Nicoli[1], Anna Maria Brambilla[1], Roberto Cosentini[1]. *[1]U.O. Medicina d'Urgenza, Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Milan, Italy; [2]U.O. Broncopneumologia, Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Milan, Italy; [3]U.O. Broncopneumologia, Ospedale S. Gerardo, Monza, Italy*

Despite prompt diagnosis and appropriate treatment against Legionella, studies reports a high incidence of complications like Acute Respiratory Distress Syndrome (ARDS). The aim of the study was to find clinical features that might identify patients at risk to develop Acute Respiratory Failure (ARF).
We retrospectively investigated patients with Legionnaires disease (LD) who had been admitted to Fondazione IRCCS Ca' Granda Policlinico of Milan from January 2008 to December 2010.
Thirtyseven definitive cases were found, 21 (56%) were male, 13 (35%) were Health Care Associated Pneumonia. LD was severe in 26 (70%) cases, which belonged to the highest Pneumonia Severity Index classes (IV-V). At the admission an acute respiratory failure (PaO2/FiO2 <250 or SpO2< 90% or PaO2< 60 mmHg) was found in 18 patients (48%), 4 of these met ARDS criteria and non invasive-ventilation (CPAP) was necessary in 7 (19%). There were no significant differences in demographic and clinical features between the two groups (not-ARF vs ARF), see table.

| | Not ARF | ARF | p-value |
|---|---|---|---|
| Age | 68±18 | 72±14 | 0.338 |
| PSI | 99±46 | 124±38 | 0.494 |
| COPD | 1 (6) | 3 (16) | 0.347 |
| Chronic Heart Failure | 4 (25) | 4 (22) | 0.894 |
| Immunodepression | 7 (19) | 3 (8) | 0.084 |
| Hypotension (SBP <90 or DBP <60) | 4 (25) | 3 (16) | 0.549 |
| Multilobar infiltrates at chest radiography | 5 (31) | 2 (11) | 0.577 |
| Hemoglobin (g/dl) | 11±2 | 13±2 | 0.781 |
| C reactive protein (mg/dl) | 22±12 | 35±16 | 0.276 |

Only one patient required an ICU admission and one patient died (3%). An appropriate antibiotic therapy was initiated in all patients on admission day.
In conclusion, though no warning prognostic sign has been found yet, clinicians should remain vigilant about the respiratory complications in patients with Legionellosis.

**P2511**

**Clinical stability in patients with community- acquired pneumonia (CAP)**

Tatjana Pejcic, Ivana Stankovic, Ivanka Djordjevic, Zorica Ciric, Tatjana Radenovic-Petkovic, Desa Nastasijevic, Milan Radovic. *Clinic for Lung Diseases and TBC, Clnical Centre, Nis, Serbia*

Clinical stability (CS) defined as normalization of vital sign, is often used to manage patients with CAP. The aim of our study was to identify the time to resolution of abnormalities in vital sign (heart rate - HR, systolic blood pressure - SP, respiratory rate - RR, oxygen saturation - SATO2 and axillaries temperature - T), ability to eat (AE), and mental status (MS) in patients with CAP (n=118). The patients divided in 2 groups, from 18-65 years old (n= 65)- first group, and older >65 (n=53 - second group). We compared parameters of CS in groups in the first day, and the time normalization of CS between groups (HR ≤100 beats/min, SP ≥90mmHg, RR ≤ 24 breaths/min, SATO2 ≥90%, T≤ 37,2C).
**Results:** We found in first group, in first day of hospitalization, average values of HR=115 beats/min, SP=103mmHg, RR=26 breathes/min, SATO2=93% T=38,3°C, in the second group HR=96 beats/min, SP=88 mmHg, RR=28 breathes/min, SATO2=87%, T=37,4°C. In 15 patients second group had mental confusion. The median time to stability in first group was 1 day for HR, SP and RR, and 2 days for SATO2, 3 days for T and 5 days for AE. The median time to stability in second group was 1 day for HR, SP, T, 2 days for RR and MS, 3 days for SATO2 and 8 days for AE.
**Conclusion:** The older patients had slowly time to stability for SATO2, RR and MS, and smaller T and HR in first day.

**P2512**

***Chlamydia pneumoniae* (Cp)-specific IgE is associated with asthma severity**

David Hahn[1,2], Katir Patel[3], Eduard Drizik[3], Wilmore Webley[3]. *[1]Family Practice, Dean Clinic, Madison, WI, United States; [2]Family Medicine, University of Wisconsin School of Medicine and Public Health, Madison, United States; [3]Microbiology, University of Massachusetts, Amherst, MA, United States*

**Background:** Multiple Cp biomarkers are associated with asthma severity but potential mechanisms are unclear.
**Aims:** To investigate bacterial allergy as a potential mechanism for Cp-associated asthma.
**Methods:** Practice-based prevalence study of serum Cp IgE by immunoblotting and whole blood Cp DNA by PCR, and associations with asthma severity and antibiotic treatment outcomes; nested case-control study of asthma cases and non-asthma controls.
**Results:** We studied 66 asthma subjects (mean age 40.9 years, range 5-75. 59% males, 65% never-smokers, 15% co-existing COPD). Cp IgE was detected in 33 (50%) and Cp DNA in 16 (24%); 88% of Cp DNA pos subjects were Cp IgE pos (P=.0011). 4 (22%) of 18 subjects with intermittent asthma were Cp IgE pos compared to 30 (63%) of 48 with persistent asthma (P=.005). We also found a significant "dose-response" relationship (Table).

Cp IgE positivity and asthma severity category

| Category | Intermittent, 18 | Mild persistent, 6 | Moderate persistent, 27 | Severe persistent, 15 | P-trend |
|---|---|---|---|---|---|
| Cp IgE pos, n (%) | 4 (22) | 4 (67) | 14 (52) | 12 (80) | 0.0088 |

A nested case-control study detected Cp IgE in 10 (53%) of 19 asthma cases and in 15 (75%) of 20 non-asthma controls (P=.15).

Of 31 asthma subjects who elected azithromycin treatment, 26 (84%) reported improvement. Cp IgE was detected in 16 of 26 reporting improvement and in 4 of 5 without improvement (P=.63).
**Conclusions:** Cp IgE was prevalent (50%) in community asthma patients, and was associated with Cp DNA and asthma severity, but was also common in non-asthma controls and did not predict response to azithromycin. Cp allergy may be one mechanism supporting a causal association of Cp and asthma. However, Cp pathogenesis is likely to be multifactorial.

**P2513**
**Chlamydia pneumoniae infection in patients with mild asthma**
Dejan Dokic[1], Sabri Aziri, Elena Trajkovska-Dokic[2], Dimitar Karkinski[1].
*[1]Department of Science, University Clinic of Pulmology and Allergy, Skopje, Macedonia, The Former Yugoslav Republic of; [2]Institute of Mycrobiology, Medical Faculty St Cyril and Methodius, Skopje, Macedonia, The Former Yugoslav Republic of*

Chronic chlamydia pneumoniae infection has been suggested, as a cause for adult onset of asthma. There are data to suggest that infectious organisms, particulary the atypical bacteria, Clamydia pneumoniae may be involved in asthma pathogenesis. The significance of these organisma is as yet unclear. It is not known whether this organism was allowed to persist after an infection, or was present prior to the development of asthma. The purpose of this study was to determent weather anti-chlamydial treatment with azitrhomycin will improve asthma symptoms and lung function in asthmatic patients without taking anti-asthmatic drugs.
40 patients (mean age 44,5 years) with mild asthma were treated a median of 6 weeks with azithromycin 1000 mg once weekly. All patients had chlamydia pneumoniae infection detected by Seeplex Multiplex PCR in sputum. Post treatment lung function and symptom score (caugh, wheezing, dyspnea) were compared with baseline values.
After 6 weeks of treatment with azithromycin there was significant reduction in symptom score ($p<0,01$) and significant improvement in lung function FEV1 ($p<0,01$), Wilcoxon matched Pairs test.
Treatment with azithromycin (which has also immunomodulatory activity) significantly improved asthma symptoms and lung function indicating that Chlamydia pneumoniae may play an important role in enhancing the inflammatory processes in lower airways.