central early phase inflammatory cytokine, we investigated whether inflammasome inhibition affects other cytokines like IL-8 and TNF-α. Murine macrophages and human lung tissue were stimulated with NTHI 10^6 cfu/ml for 24-48h. To assess the relevance of the inflammasome for the inflammatory response, a caspase-1 inhibitor (CI) was added after in-vitro infection. The inflammatory response was measured by cytokine ELISA and Western Blot. Western Blot analysis showed the activation of caspase-1 after NTHI infection and moreover the expression of the NOO-like receptors NOD1 and NLRP3. In cell culture and human lung tissue experiments IL-1β production was significantly induced (RAW: control 24h beneath lowest standard vs. NTHI 24h 408±64pg/ml, n=6, p<0.01). The inhibition of caspase-1 led to a significant reduction of IL-1β levels and also to a decrease of IL-8 and TNF-α production (IL-1β: NTHI 24h 408±64pg/ml vs. NTHI+CI 24h 174±12pg/ml, n=6, p<0.01). For the first time we demonstrate the participation of the NLRP3-inflammasome in NTHI-induced inflammation in pulmonary cells and tissues. Our findings concerning caspase-1 mediated IL-1β-upregulation emphasize the role of the inflammasome in respiratory tract infections. These results may provide new insights into the pathogenesis of persistent airway inflammation in COPD.

P2514
The role of galactomannan in exhaled breath condensate in detecting pulmonary aspergillosis in patients with exacerbated COPD

Catrinna Fohr1, Laura Trovato2, Raffaele Campisi3, Salvatore Oliveri2.

Giuseppe Di Maria1, 1Dipartimento di Medicina Bio-molecolare e Clinica, Università di Catania, Italy; 2Dipartimento di Scienze Biomediche, Università di Catania, Italy

Introduction: Growing evidence suggests that patients with severe COPD are at a higher risk of pulmonary aspergillosis (PA), especially during an exacerbation. The levels of GM in exhaled breath condensate (EBC) might allow earlier diagnosis and extend the diagnostic yield of noninvasive mycological tests.

Objective: Evaluate the role of GM in EBC for early diagnosis of PA in severe COPD patients at exacerbation.

Methods: Serum and EBC were collected from 15 severe or very severe COPD patients at exacerbation and tested for GM using a Platelia® Aspergillus Ag test. Sera/EBC fluids with an index >0.5 were considered positive. Double diffusion in agarose gel (DD) for antibody response to Aspergillus was also determined.

Results: Two patients had positive, 7 possible and 6 had no evidence of PA according to the criteria proposed by Bulpa. Serum positive GM assay was observed in 2 of the 5 patients with probable PA and in one sample of two patients with possible PA. In patients with probable PA also serum precipitins was positive (A. fumigatus). EBC analysis yielded GM positive results (range, 0.8–7.5) in one patient with probable PA, in 2 patients with possible PA and in 2 patients without PA. In a patient with probable PA, positivity of the GM in EBC, preceded that of the serum of 4 days. GM in EBC was negative in 5 out of 7 cases with possible PA and in 5 out of 6 without PA. The sensitivity of GM in EBC was lower for the diagnosis of probable and possible PA compared to serum GM. However, considering the discordant results in serum and in EBC of four patients with possible PA we suggest that EBC GM levels can expand the diagnostic yield of PA.

P2515
Clinical features of patients with pneumococcal urinary antigen positivity, in a cohort of hospitalised community acquired pneumonia

Chamira Rodrigo, Thomas Bewick, Sonia Greenwood, Wei Shen Lim.

Respiratory Medicine, Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom

Streptococcus pneumoniae accounts for up to 50% of hospitalised community acquired pneumonia. Diagnosis of pneumococcal disease has always been a challenge. Urinary antigen testing provides a non-invasive, sensitive and specific diagnostic tool. We investigated the clinical features of patients with pneumococcal urinary antigen positivity in patients admitted with community acquired pneumonia.

We conducted an observational, prospective cohort study in two large UK teaching hospitals, from September 2008 to September 2010. Consecutive adult patients (aged over 16), admitted with community acquired pneumonia (CAP) were recruited. A standardised proforma was used to collect clinical information. Urine samples were tested using the Binax NOW® immunochromatographic test. A total of 920 urine samples were available for analysis. 205(22.3%) had a positive antigen test.

Patients with a positive antigen test were more likely to be hypotensive (16.8% of antigen positive vs. 6.8% of antigen negative patients, OR 2.8, 95% CI 1.7-4.8, p<0.05) and tachypnoeic at presentation. Incidence of parapneumonic effusion and critical care admission rates (OR 2.22, 95%(CI 1.49-3.34, p<0.01) were also higher in the antigen positive group. These associations were maintained when adjusted for age and pneumonia severity. Patients with a positive pneumococcal antigen test were more unwell at presentation with a greater likelihood of complications. This is likely to be due to the higher bacterial load in patients with a positive antigen test. Thus, urinary antigen testing appears to add prognostic value in addition to its diagnostic capabilities, when used in pneumococcal disease.

266. Prognostic indices in respiratory infections

P2513
Nontypeable haemophilus influenzae leads to activation of the NLRP3 inflammasome – A possible trigger of chronic bronchial inflammation in COPD

Johannes Rotta detto Loria1, Kristina Rohmann1, Daniel Drohmann1, Jan Rupp2, Torsten Goldmann4, Klaus Dahlhoff1, 1Medical Clinic III, University of Luebeck, Germany; 2Institute of Medical Microbiology and Hygiene, University of Luebeck, Germany; 3Medical Clinic, Research Center, Borstel, Germany

The inflammasome is a cytosolic protein complex which is involved in a variety of inflammatory diseases. Since it represents a heterogenous group of proteins, we elucidated which specific set of proteins is recruited after stimulation with nontypeable Haemophilus influenzae (NTHI). In view of the fact that IL-1β is a
P2516 Effect of Cryptococcus neoformans on the immune system of immunocompetent patients

Jiawen Wang, Yongfeng Luo, Xiaoqun Wei, Yanping Zai, Shuyue Li. The State Key Laboratory of Respiratory Disease, Guangzhou Institute of Respiratory Disease, Guangzhou, Guangdong, China

On one hand the host immune system regulates the susceptibility and resistance to cryptococcal infection, on the other Can it affect T-cell activation and polymorphonuclear function? Cn may potentially interfere with the differentiation of TH1 cells, which may be an escape mechanism of evade host defence and contribute to the cryptococcal infection in immunocompetent patients. However, most of these effects on T-cell biology were only found in cell and animal studies so far.

Objectives: To determine the effect of Cn on the immune system of immunocompetent patients.

Methods: Twenty immunocompetent patients with pulmonary cryptococcal infection were enrolled. Blood plasma concentrations of IFN-γ, IL-4 and IL-12 were measured using Elisa. PBMC were then isolated and incubated with or without IL-12 for 6 hours, followed by the assay of IFN-γ and IL-4 concentration in the supernatant.

Results: Plasma IFN-γ was greatly decreased in the patients when compared to the healthy controls. No significant differences in plasma IL-4 and IL-12 were observed. Although IL-12 treatment can both increase IFN-γ level in PBMC, culture supernatant from the two groups, the increment for cryptococcal infection patients was much lower (3.1-fold) compared with that from healthy control (7.4-fold). IL-12 treatment had no observed effect on the IL-4 production of PBMC.

Conclusions: Cryptococcal infection can damage the host immune system, leading to a deficient response to the IL-12 stimulation and an impaired TH1 polarization. This may explain the persistence of Cn in the immunocompetent patients.

P2517 Exhaled breath biomarkers in patients with ventilator associated pneumonia (VAP)

Ulrike Griggi, Phillip Tretz, Patricia Fuess, Jochen Schubert, Wolfram Miekisch. Anesthesiology and Intensive Care Therapy University of Rostock, Germany

Volatile organic compounds (VOC) in breath have been described as biomarkers of metabolic, excretory stress and cancer. This pilot study was intended to find out whether VAP related breath biomarkers could be recognized by means of a smart and rapid combination of VOC sample preparation and analysis.

20 mechanically ventilated patients (10 with pneumonia, 10 controls) were investigated. 500 mL of alveolar gas were withdrawn from the respiratory circuit. VOCs were pre-concentrated by means of needle trap micro extraction (NTME) at the bedside and identified/quantified by means of gas chromatography-mass spectrometry (GC/MS). Results were analysed using ANOVA on ranks. Expected concentrations of VOC’s ranged from (400 ppbv to 3000 ppbv (0.02 to 14.2 nmol/L). Exhaled acetone concentrations were higher in control patients (median 2895 ppbv vs. 187 ppbv, p=0.037). VAP patients exhaled lower concentrations of CS aldehydes (median 2.06 ppbv vs. 19.683 ppbv, p=0.013) than control patients. Exhaled pentane showed a tendency to higher concentrations in VAP patients (median 9.907 ppbv vs. 6.040 ppbv).

The NTME-GCMS assay enabled reliable detection of volatile substances from ventilated patients in trace amounts. Elevated pentane concentrations indicate oxidative stress in VAP, reduced aldehyde concentrations may be due to chemical quenching with ONOO- present in the alveoli of pneumonia patients.

Analysis of exhaled oxygenated compounds bears the potential of non invasive monitoring and recognition of pathological pulmonary processes.

P2518 Copeptin predicts early clinical deterioration and persistent instability in community-acquired pneumonia

Marin Kolditz1, Michael Halank 1, Bernhard Schulte-Hubbert1, Sybille Bergmann2, Stefan Albrecht3, Gert Hoffken1.

Aims and objectives: To investigate the predictive value of the biomarker copeptin and proadrenomedullin (MR-proADM) in comparison to clinical scores and inflammatory markers to predict early risk prognosis in CAP.

Methods: 51 consecutive hospitalised adult patients were enrolled. We measured CRP-65 and PSI-scores, the ATS/IDSA 2007 minor criteria to predict ICU admission and the biomarkers CRP, procalcitonin, copeptin and MR-proADM on admission. Predetermined outcome parameters were combined mortality or ICU admission after 7 days and clinical instability after 72 hours.

Results: Copeptin was the only biomarker significantly elevated in patients with either adverse short term outcome (p<0.005). In ROC-curve analysis copeptin predicted ICU admission or death within 7 days (AUC 0.81, cut-off 35 pmol/L sensitivity 78%, specificity 79%) and persistent clinical instability after 72 h (AUC 0.74). In Kaplan-Meier-analysis patients with high copeptin showed lower ICU-free survival within 7 days (p=0.001). The diagnostic accuracy of copeptin was superior to the CRB-65 score and comparable to the PSI-score and the ATS/IDSA minor criteria.

Conclusion: Copeptin predicts early deterioration and persistent clinical instability in hospitalised CAP and improves the predictive properties of existing clinical scores. It should be evaluated within a biomarker guided strategy for early identification of high risk CAP patients.

P2519 Correlation of Mycobacterium tuberculosis-specific and non-specific quantitative T cell IFN-γ responses with mycobacterial load in a HIV-prevalent high burden setting

Grant Theron, Jonny Peter, Laura Lenders, Richard van Zyl Smit, Richard Meldau, Ureshnie Govender, Keertan Dheda. Medicine, University of Cape Town, Western Cape, South Africa

Background: Measures of bacillary load in patients with tuberculosis (TB) may be useful for predicting and monitoring response to treatment. The relationship between quantitative T-cell responses and mycobacterial load is poorly studied. We hypothesised that, in a high burden setting, the magnitude of mycobacterial antigen-specific and non-specific T-cell IFN-γ responses would correlate with (a) bacterial load and (b) culture conversion in patients undergoing treatment.

Methods: We compared the magnitude of purified-protein-derivative (PPD) and RD1-specific (TSPOT.TB and QFT-GIT) peripheral blood IFN-γ T-cell responses with associates of sputum bacillary load [liquid culture time-to-positivity, smear-microscopy grade, Xpert-MTB/RIF CT values] at the beginning of treatment, and the presence of cavities on a chest radiograph in 513 individuals with suspected TB in Cape Town, South Africa. Serial IGRA responses were evaluated at 2 and 6 months (n=130) post-treatment initiation.

Results: PPD and RD1-specific IFN-γ responses were not associated with culture TTP (p-values for TSPOT.TB, QFT-GIT and PPD of 0.11, 0.07 and 0.09, smear-grade 0.42, 0.09, and 0.85, Ct values 0.70, 0.91, and 0.80) or the presence of cavities on the chest radiograph (0.12, >0.05, and 0.08). 2-month IGRA conversion rates (positive to negative) were negligible (<10% for TSPOT.TB (3/28) and QFT-GIT (1/29)) and lower compared to culture (60% (21/35); p<0.01).

Conclusions: In a high-burden setting M. tuberculosis-specific and non-specific antigen-driven IFN-γ responses do not correlate with bacillary load and are not useful for prognostication or treatment monitoring.

P2520 LL-37 is produced intrapleurally in infectious pleural effusion

Carlos Antonio Amado1, Javier Villuela1, Mayte García-Unzueta2, Juan José Ruiz-Caballín1, Alejandro Daly1, Beatriz Absalac1, Diego Ferrer2, Francisca Santos3, David Iturbe1, Ramón Agüero1.

1Division of Pulmonology, 2Internal Medicine, University of South Carolina, USA; 3Biochemistry, Hospital Universitario Marqués de Valdecilla, Santander, Cantabria, Spain

LL-37 is an antimicrobial peptide produced by neutrophils, respiratory epithelial and mesothelial cells that has been studied for its broad spectrum activity against microorganisms. It also recruits inflammatory cells and promotes immune responses. It has never been measured in pleural fluid.

Aims and objectives: The objective of our study is to measure the pleural and serum levels of LL-37 in pleural effusions, and to compare these levels and the pleural-to-serum LL-37 ratio among pleural fluids of three frequent etiologies: infectious, malignant and congestive heart failure (CHF).

Methods: We obtained 42 pleural effusions and divided them into 3 diagnostic categories. LL-37 was measured in the pleural fluid and serum of 23 infectious effusions, 10 malignant effusions and 9 CHF effusions by ELISA. Statistical analyses were performed using software SPSS 17.0.

Results: Results are presented: mean ± Std. Deviation (median, minimum-maximum).

- Pleural Fluid LL-37 levels: Infectious 3.77±4.81 ng/ml (1.64, 0.38-19.4) malignant 2.58±4.17 (0.87, 0.89-13.5), CHF 1.5±1.02 (0.99, 0.37-5.3) (p<0.04).
- Serum LL-37 levels: Infectious 2.09±1.42 ng/ml (0.98, 0.06-16.35) malignant 3.44±4.31 (0.19, 0.17-12.6), CHF 3.44±3.02 (0.6, 0.71-10.3) (p<0.13).

Pleural fluid-to-Serum LL-37 ratio levels: Infectious 1.33±1.88 (2.2, 100-0.43) malignant 0.60±0.92 (0.72, 1.11-0.21), CHF 0.46±0.93 (0.44, 1.12-0.24) (p<0.001). Infectious vs malignant p=0.002, infectious vs CHF p<0.001, malignant vs CHF not significant.

Conclusions: Pleural fluid-to-Serum LL-37 ratios are significantly elevated in infected pleural effusions in comparison with malignant or CHF pleural effusions, suggesting that LL-37 is actively produced intrapleurally in infections.
P2521
Usefulness of procalcitonin as a diagnostic marker of pleural effusion
Malha Young1, Runa El Hotby1, Ann Darwis2, Heba Fahty3, Nevin El Hotby4, Nasr El-Kom5, Mina El-Kom5, Egypt; 2Biochemistry, Minoufiya University, Shebin El-Kom, Minoufiya, Egypt.

Pleural effusions are common and are associated with many diseases. We investigated the usefulness of procalcitonin (PCT) as a diagnostic marker for the cause of pleural effusion. The study was carried out on 54 patients with pleural effusion divided into groups; transudate (n=6), empyema (n=9), T.B (n=8), parapneumonic effusions (PPE) (n=9) and malignant effusions (n=22). Levels of procalcitonin were measured both in serum & pleural effusions. Pleural fluid procalcitonin was highest in empyema 1.17±0.86 ng/ml, next highest in PPE (0.57±0.56 ng/ml), & lowest in transudative effusions (0.06±0.05 ng/ml). Pleural fluid & serum procalcitonin levels positively correlate in both empyema & PPE. The optimal discrimination of patients with empyema could be performed at a cut-off point of pleural fluid procalcitonin 0.09 ng/ml with area under the curve (AUC) of 0.93 (sensitivity 80%, specificity 95%) and at a serum procalcitonin 0.08 ng/ml with AUC of 0.74 (sensitivity 80%, specificity 60%). The optimal discrimination of patients with PPE could be performed at a cut-off point of pleural fluid procalcitonin 0.065 ng/ml (sensitivity 78%, specificity 53%) and at a serum procalcitonin 0.054 ng/ml (sensitivity 80%, specificity 33%). The optimal discrimination of patients with (empyema & PPE) could be performed at a cut-off point of pleural fluid procalcitonin 0.075 ng/ml (sensitivity 78%, specificity 53%) and at a serum procalcitonin 0.07 ng/ml (sensitivity 83%, specificity 47%). In conclusion: Pleural fluid PCT is a good and early marker of infection in the pleural space and correlates with the serum PCT in patients with PPE or empyema. Pleural PCT had better diagnostic accuracy than the serum PCT in cases of PPE & empyema.

P2522
Pseudomonas aeruginosa exacerbations in COPD patients
Isabelle Radi1, Vincent Jouneau1, Claire Andrejak2, Respiratory Diseases, Teaching Hospital, Amiens, France

Background: Pseudomonas aeruginosa is found in COPD patients sputum in 4-15%, mainly in those with advanced disease and/or in those requiring mechanical ventilation. Currently, there is no data to justify an empiric antibiotic therapy against Pseudomonas aeruginosa when a new COPD exacerbation occurs in a patient with a previous Pseudomonas aeruginosa exacerbation.

Methods: We conducted a retrospective study to analyse microbiological ecology exacerbations in COPD patients with at least one Pseudomonas aeruginosa exacerbation.

Results: Among the 243 COPD patients hospitalized during the study period (2007-2011), only 23 (9.5%) had at least one Pseudomonas aeruginosa exacerbation (Exacerbations per patient 1.8). They presented a new Pseudomonas aeruginosa exacerbation in 54% of cases. From one to another exacerbation, the Pseudomonas aeruginosa susceptibility changed, with a wild type Pseudomonas aeruginosa in 58% of cases during the first exacerbation and 42% during the next one. COPD patients with GOLD stage IV were rarely hospitalized for a wild Pseudomonas aeruginosa exacerbation (p = 0.01, 15% vs. 83% in GOLD stage II and III patients).

Conclusion: In this pilot study, the microbiological ecology of COPD exacerbation differed from one exacerbation to another, contrary to that observed in cystic fibrosis patients.

P2523
Prognostic factors for short and long term outcomes of outpatient exacerbations in moderate-to-severe COPD
Rob Wilson1, Antonio Anzueto2, Marc Miravitlles3, Pierre Arvis4, Daniel Hervestock5, Mila Trajanovic5, Sanjay Sethi2. 1Host Defense Unit, Royal Brompton Hospital, London, United Kingdom; 2Pulmonary, Critical Care, University of Texas Health Science Center at San Antonio, United States; 3Institut d’Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Hospital Clinic, Barcelona, Spain; 4Bayer HealthCare Pharmaceuticals, Bayer, Lous, France; 5Bayer HealthCare Pharmaceuticals, Bayer, Montville, United States.

Aims: To evaluate the colonization in patients with advanced COPD.

Methods: In this single-center evaluation, 379 patients with advanced COPD (GOLD III and IV) in our pre-transplant outpatient clinic were screened between October 2008 and November 2011 by lung function, exacerbation rate within the last 12 month and sputum analysis.

Results: The median exacerbation rate within the last 12 months was 2 (IQR 1-3). 51,7% of the patients had expectoration and 40,9% had none (7,4% remains unknown). We analyzed the sputum of 186 patients and had a positive sputum culture in 31,6% of the patients, which is 16,4% of the whole examination group. Patients with a positive sputum culture were significantly more often hospitalized due to exacerbation (p=0.02). 94 patients (24,8%) underwent lung transplantation in the observation period. 19% of the explanted lungs had a proof of pathogenic organism. In 71 patients (75,5%) analysis of the sputum before transplantation was concordant with the results of the explanted lung. 11 patients (11,7%) had a proof in the explanted lung and no positive sputum or expectoration before.

Conclusion: Even in patients with end stage COPD chronic bacterial colonisation does play a role only in a minority of the patients (16%). The proof of pathogenic organisms correlates with significant more hospitalization due to exacerbations.

P2524
Colonization in advanced chronic obstructive pulmonary disease
Jessica Rademacher, Hendrik Suhling, Günter Auenhammer, Jens Gottlieb, Tobias Weile, Respiratory Medicine, Medical School, Hannover, Germany.

Background: Isolation of potentially pathogenic organism from the sputum is associated with at least one hospitalization for COPD exacerbation (Martínez-García et al. Chest 2011; 140: 1130-1137). But there is still a lack of examinations in larger populations of patients with COPD and pathogenic colonization.

Aims: This examination was performed to evaluate the colonization in patients with advanced COPD.

Methods: In this single-center evaluation, 379 patients with advanced COPD (GOLD III and IV) in our pre-transplant outpatient clinic were screened between October 2008 and November 2011 by lung function, exacerbation rate within the last 12 month and sputum analysis.

Results: The median exacerbation rate within the last 12 months was 2 (IQR 1-3). 51,7% of the patients had expectoration and 40,9% had none (7,4% remains unknown). We analyzed the sputum of 186 patients and had a positive sputum culture in 31,6% of the patients, which is 16,4% of the whole examination group. Patients with a positive sputum culture were significantly more often hospitalized due to exacerbation (p=0.02). 94 patients (24,8%) underwent lung transplantation in the observation period. 19% of the explanted lungs had a proof of pathogenic organism. In 71 patients (75,5%) analysis of the sputum before transplantation was concordant with the results of the explanted lung. 11 patients (11,7%) had a proof in the explanted lung and no positive sputum or expectoration before.

Conclusion: Even in patients with end stage COPD chronic bacterial colonisation does play a role only in a minority of the patients (16%). The proof of pathogenic organism correlates with significant more hospitalization due to exacerbations.

P2525
Biomarkers and severity in community-acquired pneumonia (CAP)
Sergio Fundo1, Elisa Mincholle1, Ana Lasierra2, Ana Simon2, Carolina Pandera1, Guillermo Hernandez2, Francisco De Pablo1, Sandra Garcia1, Carlos Lapresta1, Salvador Bello1. 1Pulmonology, Hospital Miguel Servet, Zaragoza, Spain; 2Biochemistry, Hospital Miguel Servet, Zaragoza, Spain.

Introduction: To evaluate the prognostic value of biomarkers in community-acquired pneumonia (CAP), we studied the correlations between C-reactive protein (CRP), procalcitonin (PCT), leukocyte count (WBC) and proadrenomedulin (proADM) with the widely used PSI severity score.

Conclusion: Several new risk factors have been identified that may help identify exacerbation patients who are at risk of failure despite adequate antibiotics. These patients should be closely monitored during and after treatment of their exacerbation.
Material and methods: We prospectively studied 282 immunocompetent, adults patients hospitalized with CAP, calculated their PSI score and measured on admission the mentioned four blood biomarkers. Subsequently, we established the ROC curves to determine which of the biomarkers had a better discriminating power from mild CAP (PSI 1-3) to severe ones (PSI 4-5).

Results: PCT and proADM significantly discriminated severe from mild CAP, although the area under curve was significantly higher for proADM (0.757 vs. 0.581). The other two biomarkers did not reach statistical significance.

Conclusions: ProADM is a good predictor of CAP severity at the time of admission, and can be useful, with the clinical scores to identify severe CAP. This may help us to decide decisions of patients site of care and management in the early hours.

P2526
Role of basophils in immunological memory responses to pneumococcal protein antigens and S. pneumoniae infections in mice
Andrea Bischof1, Christina Brumshagen1, Regina Maus1, Matthias Mack2, Susan Hollingshead1, David Briles1, Tobias Welte1, Ulrich Maus1, 1Department of Experimental Pneumology, Hannover Medical School, Hannover, Germany; 2Department of Internal Medicine II, University Hospital, Regensburg, Germany; 3Department of Microbiology, University of Alabama at Birmingham, United States; 4Clinic for Pneumology, Hannover Medical School, Hannover, Germany

Basophils have been shown to play an important role in immune memory responses to vaccination with pneumococcal protein antigens. We here examined whether increased basophil counts would provide increased humoral immune responses and thus protection against S. pneumoniae. Mice underwent primary and secondary immunization with pneumococcal surface protein A (PspA). Prior to secondary immunization, mice were treated with IL-3 or IL-3 complexed with α-IL-3 antibody (IL-3 complex) to increase basophil pool sizes. Subsequently, mice were challenged with invasive S. pneumoniae and developing bacteremia and survival were monitored over time. Treatment of mice with IL-3 and even more so IL-3 complex resulted in strongly expanded basophil pool sizes and significantly increased proADM levels for PCT and PCT had significant higher levels in bacteria-involved CAP (bacterial mixed) than viral-like typical ones. Mixed bacterial/viral CAP had a similar value for PCT, whereas viral pneumonias showed lower PCT levels. CRP values were also different between viral and mixed CAP. When Influenza was removed from viral group, differences were maintained. ROC curve to try to discriminate bacteria-involved from viral CAP, had an AUC for PCT of 0.658 (p<0.001).

Conclusion: Biomarkers CRP and specially, PCT have a different behavior in viral than mixed bacterial/virus CAP, even without including Influenza. That suggests that viruses can be, without associated copathogen, cause of CAP. Levels of PCT are similar in bacterial CAP than mixed virus/bacterial CAP, and higher than the viral pneumonia ones, and it can help us to differentiate bacteria-involved pneumonia from viral CAP.

P2527
Bacterial biofilms in bronchiectasis of primary ciliary dyskinesia (PCD) in comparison with cystic fibrosis (CF)
Dirk Theegarten1, Judith Kiknley1, Annett Petroeh2, Ute Sommerweck1, Stefan Welter2, Olaf Altmez1, Annette Mescher1, 1Institute of Pathology and Neuropathology, University Hospital Essen, Germany; 2Department of Pneumology - Lung Transplantation, Ruhrlandklinik - University Hospital Essen, Germany; 3Department of Thoracic Surgery, Ruhrlandklinik - University Hospital Essen, Germany

Background: Bronchiectasis (B) is induced by different mechanisms, one of these is primary ciliary dyskinesia (PCD). Genetic aberrations lead to a lack of mucociliary clearance. The bacterial biofilm in B of patients with PCD in comparison to CF was studied by fluorescence in situ hybridisation (FISH).

Material and methods: An expant and 2 middle lobe resections of 3 patients (age between 5 and 50 years) were investigated using conventional histology. Diagnosis of PCD was confirmed by transmission electron microscopy. For comparison 10 explants of CF patients were available. Of all cases, at least 2 locations were studied by FISH using a pan-bacterial and a Pseudomonas (Ps.) specific probe.

Results: Histology revealed typical B. In all 3 PCD cases no bacterial biofilms were detected by FISH, although in at least one case Ps. was detected by culture previously. In comparison all CF cases showed colonization with Ps.

Conclusions: Significant differences exist concerning bacterial biofilms in PCD versus CF. This might be of relevance for the clinical practice.
culture was positive. Cultures of blood, sputum, tracheal aspirate and bronchial lavage were positive in 34.3%, 48.8%, 71.2% and 6.7% respectively. Acinetobacter was the most isolated microorganism.

The most common microorganism in the ward, and ICU patients were Pseudomonas (8.6%) and Acinetobacter (32.5%) respectively. Mean age was 72 ± 9.4 vs 66 ± 12.9 (p < 0.004), mortality rate was 47.8% vs 7.6% (p < 0.001), length of hospital stay was 15.7 ± 12.6 days (p = 0.009) and hospital costs were 6949 ± 6606 vs 2913 ± 1743 Turkish Liras (p < 0.001) in culture positive patients and culture negative’s. In hospitalised COPD patients in our clinic, Acinetobacter was the most common isolated microorganism. In culture positive group, mean age, mortality and hospital costs were higher compared to culture negative group.

P2530

Cellular composition of bronchial brush-biopsies at COPD exacerbation

Sophia Nesterovich1, Ekaterina Bukreeva1,2

1 Out-patient Department, Municipal Clinical Hospital No. 3, Tomsk, Russian Federation; 2Internal Diseases Department, Siberian State Medical University, Tomsk, Russian Federation

46 COPD exacerbation patients were examined. Cytological research of brush-biopsies were taken at bronchoscopy was made; for verification of infectious nature of COPD exacerbation the quantitative bacteriological sputum research, definition of diagnostic main IgG, IgM levels to Ch.pneumoniae, M.pneumoniae in serum by means immuno-assay method, definition of their genomes fragments in sputum by means of PCR method were made. Kruskal – Wallis criterion was used.

Infectious character of COPD exacerbation was confirmed at 36 patients. Typical cells count in H.influenzae, Ch.pneumoniae, M.pneumoniae infection was 14 ± 2.2%, 15 ± 2.5%, 15 ± 3.1%, that was reliable low (p < 0.05), than in S.pneumoniae, M.catarrhalis infection (32 ± 3.6%, 37 ± 5.1%). Reserved cells count was reliable high (p < 0.05) in M.pneumoniae (12 ± 0.2 ± 6%), than S.pneumoniae H.influenzae, Ch.pneumoniae, M.catarrhalis infection (5.3 ± 1.0%, 8.4 ± 1.5%, 8.9 ± 1.9%, 5.0 ± 2.3%). Squamus metaplased cells was reliable high (p < 0.05) in H.influenzae, Ch.pneumoniae, M.pneumoniae infection (6.3 ± 1.2%, 7.5 ± 1.2%, 7.4 ± 1.6%), than in S.pneumoniae, M.catarrhalis infection (2.5 ± 0.9%, 2.2 ± 0.7%). Dystrophical cells count was reliable high (p < 0.05) in H.influenzae, Ch.pneumoniae infection (56 ± 2.1%, 54.9 ± 2.8%), than S.pneumoniae, M.pneumoniae, M.catarrhalis infection (46.9 ± 3.0%, 44.7 ± 3.5%, 38.9 ± 4.3%). Macrophages quantity was reliable high (p < 0.05) in M.pneumoniae infection (55.1 ± 0.9%) as compared with S.pneumoniae H.influenzae, Ch.pneumoniae, M.catarrhalis infection (33.7 ± 3.7%, 27.4 ± 3.0%, 25.2 ± 3.5%).

Infectional agent species influence on degree of bronchial mucosa damage. H.influenzae, Ch.pneumoniae have more injured effects and M.catarrhalis have least injured effects.

P2531

Inflammatory cells composition of bronchial brush-biopsies in dependence on infectious agent species at COPD exacerbation

Sophia Nesterovich1, Ekaterina Bukreeva1,2

1 Out-patient Department, Municipal Clinical Hospital No. 3, Tomsk, Russian Federation; 2Internal Diseases Department, Siberian State Medical University, Tomsk, Russian Federation

46 COPD exacerbation patients were examined. Cytological research of brush-biopsies were taken at bronchoscopy was made; for verification of infectious nature of COPD exacerbation the quantitative bacteriological sputum research, definition of diagnostic main IgG, IgM levels to Ch.pneumoniae, M.pneumoniae in serum by means immuno-assay method, definition of their genomes fragments in sputum by means of PCR method were made. Kruskal – Wallis criterion was used.

Infectious character of COPD exacerbation was confirmed at 36 patients. Typical cells count in H.influenzae, Ch.pneumoniae, M.pneumoniae infection was 14 ± 2.2%, 15 ± 2.5%, 15 ± 3.1%, that was reliable low (p < 0.05), than in S.pneumoniae, M.catarrhalis infection (32 ± 3.6%, 37 ± 5.1%). Reserved cells count was reliable high (p < 0.05) in M.pneumoniae (12 ± 0.2 ± 6%), than S.pneumoniae H.influenzae, Ch.pneumoniae, M.catarrhalis infection (5.3 ± 1.0%, 8.4 ± 1.5%, 8.9 ± 1.9%, 5.0 ± 2.3%). Squamus metaplased cells was reliable high (p < 0.05) in H.influenzae, Ch.pneumoniae, M.pneumoniae infection (6.3 ± 1.2%, 7.5 ± 1.2%, 7.4 ± 1.6%), than in S.pneumoniae, M.catarrhalis infection (2.5 ± 0.9%, 2.2 ± 0.7%). Dystrophical cells count was reliable high (p < 0.05) in H.influenzae, Ch.pneumoniae infection (56 ± 2.1%, 54.9 ± 2.8%), than S.pneumoniae, M.pneumoniae, M.catarrhalis infection (46.9 ± 3.0%, 44.7 ± 3.5%, 38.9 ± 4.3%). Macrophages quantity was reliable high (p < 0.05) in M.pneumoniae infection (55.1 ± 0.9%) as compared with S.pneumoniae H.influenzae, Ch.pneumoniae, M.catarrhalis infection (33.7 ± 3.7%, 27.4 ± 3.0%, 25.2 ± 3.5%).

Infectional agent species influence on degree of bronchial mucosa damage. H.influenzae, Ch.pneumoniae have more injured effects and M.catarrhalis have least injured effects.

P2532

Nosocomial pneumonia control programs: The most difficult questions

Roman Bonsetsevich, Tetiana Pertseva

Internal Medicine, St. Ioasaf Belgorod Regional Clinical Hospital, Belgorod, Russian Federation Internal Medicine, Dnipropetrovs’k State Medical Academy, Dnipropetrovs’k, Ukraine

Objective: To develop and to study nosocomial pneumonia control programs (NPCP) in general surgical departments (GSD).

Significance: We’ve developed and carried out specific NPCP for GSD and also have studied level of surgeons' knowledge and revealed most problem questions.

Study design: Prospective study.

Setting: 6 surgical departments in a city hospital #6.

Study population: Surgeons.

Methods: During 2001-2003 NPCP were developed and carried out among 65 surgeons. There have been considered questions covered control and prophylaxis of nosocomial pneumonia (NP) and other nosocomial infections (NI). Special questionnaire included 27 questions has been created to estimate an initial and final level of medical staff knowledge (LMSK).

Results: After surgeons completed questionnaire at the first time, level of correct answers (LCA) has totaled 48.8%. Taking into account the results of received data there have been developed and carried out special NPCP aimed to increase the LMSK (lectures, discussions, printed issues). Comparative exercise was repeated 1.5 yrs later. Test showed the increase of LCA up to 60% (p < 0.05). We determined that NP-rate was statistically decreasing during NPCP (p < 0.05). It was fixed that the most difficult questions were the following: sources of NI agents, risk factors of NI, rationale antibiotic use, hand-hygiene and other NI-preventive measures, mortality rates under NI.

Conclusions: There is a necessity to carry out NPCP among surgeons in GSD to increase LMSK and to decrease NP level. Therefore, the most difficult questions require to be studied more deeply.