P4364
Clarithromycin inhibits pandemic A/H1N12009 influenza virus infection in human airway epithelial cells
Mutsumi Yamada1, Yukimasa Hatachi2, Hiroshi Kubo3, Hidekazu Nishimura3.
1Department of Advanced Preventive Medicine for Infectious Disease, Tohoku University Graduate School of Medicine, Sendai, Japan; 2Department of Respiratory Medicine, Graduate School of Medicine Kyoto University, Kyoto, Japan; 3Virus Research Center, Clinical Research Division, Sendai National Hospital, Sendai, Japan

Rationale: We reported previously that clarithromycin (CAM), a macrolide antibiotic, inhibits seasonal type A influenza virus (H3N2) infection in human airways. However, the effects of CAM on infection by the pandemic A/H1N12009 influenza virus (A/H1 2009 pdm) have not been studied.

Methods: Human tracheal epithelial cells (n=3) were pretreated with CAM (10 μM) and then infected with the A/H1 2009 pdm in 24-well plates.

Results: The viral titer and the amount of interleukin (IL)-6, a pro-inflammatory cytokine, in the supernatant increased with time after A/H1 2009 pdm infection. CAM reduced the viral titer (6.7±0.4 log TCID50 units/ml/24 h for virus alone vs. 4.9±0.2 log TCID50 units/ml/24 h for virus plus CAM; p<0.05, mean ± SE) and IL-6 (211±8 pg/ml/24 h for virus alone vs. 149±7 pg/ml/24 h for virus plus CAM; p<0.05) 3 days after infection. CAM also reduced the number of epithelial cells detached from culture vessels 7 days after infection (32±2 x 10^3/well in virus alone vs. 12±2 x 10^3/well in virus plus CAM; p<0.05). In addition, we compared the viral titer and the numbers of detached cells after infection between the A/H1 2009 pdm and the A/H3N2 virus. The viral titer and the number of the detached cells after infection with the A/H1 2009 pdm were higher than those after infection with the A/H3N2 virus (4.1±0.4 log TCID50 units/ml/24 h and 5±1 x 10^3/well for the A/H3N2 virus; p<0.05).

Conclusion: Clarithromycin may inhibit A/H1 2009 pdm infection and may modulate airway inflammation and epithelial damage during the infection. The A/H1 2009 pdm may release higher levels of virus and may be more cytotoxic than seasonal influenza virus (H3N2).

P4365
Community-acquired pneumonia in five European countries: Usage patterns and real-life effectiveness of antibiotics (REACH study)
1Department of Medicine, University of Turin, Turin, Italy; 2Department of Medicine, Hospital Universitari Mutua de Terrassa, Barcelona, Spain; 3Medical Department, AstraZeneca, Madrid, Spain; 4Medical Department, AstraZeneca Europe, Zaventem, Belgium; 5Instat Services, Instat Services Inc., Chatham, NJ, United States; 6Department of Internal Medicine III, University Hospital, Munich, Germany

Background: Comprehensive, current data on the burden of hospitalized community-acquired pneumonia (CAP) in Europe are scarce.

Aims: To describe the hospitalized CAP population in Europe and to review current clinical practice and its impact.

Methods: REACH (NCT01293435) was a retrospective (2010–2011), observational study in ten EU countries. Patients were ≥ 18 years old, hospitalized with community-acquired pneumonia in five European countries: Usage patterns and real-life effectiveness of antibiotics (REACH study).

Poster Discussion
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P4366
Casposfungin to treat invasive pulmonary aspergillosis in sarcoidosis
Benjamin Gariteli1, Greg Keir1, Muhammad Arain2, Michael Loebinger2, Robert Wilson1, Elizabeth Renznoli1, Athol Wells1, Toby Maher1. 1Intersitial Lung Disease Unit, Royal Brompton Hospital, London, United Kingdom; 2Host Defense Unit, Royal Brompton Hospital, London, United Kingdom

Rationale: Invasive pulmonary aspergillosis is a potentially life-threatening complication of sarcoidosis, with destructive fibrotic lung disease and immunosuppressive therapy contributing to its development. Optimal therapy is not known. We report a successful treatment protocol using cyclical intravenous caspofungin infusions.

Methods: Consecutive patients with sarcoidosis and invasive pulmonary aspergillosis treated with caspofungin were identified from our pharmacy prescribing database. Clinical and radiological data were collected retrospectively prior to caspofungin treatment, and during follow-up.

Results: Nine patients (5 men), with a mean age of 44.1 ± 11.3 years, and a mean duration of sarcoidosis of 10 years (range 2-16), were treated with caspofungin. All patients had fibrotic pulmonary sarcoidosis (stage IV) on chest radiograph. Eight patients also received prednisolone. Six patients received prior oral antifungal therapy (voriconazole or itraconazole), and were converted to caspofungin due to lack of efficacy or side-effects.

Median follow-up was 12.5 months (4-32) after the commencement of caspofungin. In eight patients, symptoms and inflammatory markers improved rapidly after initation of caspofungin. In the 6 patients for whom a minimum of 6 months follow-up was available, chest radiographs improved in 4 (67%), and median BMI improved from 23.2 (17.0-31.0) to 25.2 (21.5-36.0) (p<0.04).

Conclusion: Invasive pulmonary aspergillosis associated with sarcoidosis may be a safe and effective therapeutic alternative in these patients.

P4367
Macrolides vs quinolones in Legionella pneumonia treatment: CAPVAPANT group, Valencia, Spain
Susana Hernandez1, Estrella Fernandez1, Angela Cervera1, Carmen Aguas2, Francisco Sanz1, Jose Blanquer1, Eusebi Chiner5.
1Neumologia, Hospital Universitario Dr. Peset, Valencia, Spain; 2Neumologia, Hospital Armua de Vilanova, Valencia, Spain; 3Neumologia, Hospital General Universitario de Valencia, Valencia, Spain; 4ICU, Sant Joan, Alicante, Spain

Background: There is not data enough to assure Quinolones are more effective than Macrolides in Legionella pneumonia treatment (CAP-L). We analysed differences at CAP-L evolution related to the antibiotic employed.

Methods: 12 months prospective, multicenter and longitudinal study in 10 hospitals of a Spanish area, enrolling consecutive CAP patients. Differences in illness severity scores (PSI and CURB65), clinical-radiological findings, length of hospital stay and outcomes, and mortality were analyzed in a subgroup of CAP-L patients, divided in two groups: Group A-CAP-L treated with Macrolides and Group B treated with Quinolones. Statistics: Independent-samples T test and X2 test.

Results: From 1314 cases of CAP, 11.2% were CAP-L. 70.1% men, mean age 62.2±16 years old. 37.2% were included in Group A and 54.7% in Group B. 89.9% of cases were admitted in hospital for treatment, with LOS of 8.9±6.7 days, and no differences between the two groups (A 8.3±4.3 days vs B 8.9±6.7, p=0.52). No differences were observed in clinical or radiological data, neither in blood gas analysis nor illness severity by PSI or CURB65 scores at admission between the two groups. Evolution time until treatment administration was 4.63±2.8 days (A 4.85±3.17 vs B 4.52±2.73 days; p=0.74). Clinical evolution was similar in two groups with ICU admittance in 6.1% (A 5.5% vs B 7.4%, p=0.58), mechanical ventilation in 4.1% (A 3.6% vs B 4.9%, p=0.7), respiratory failure in 10.1% (A 10.9% vs B 8.6%, p=0.67), and death in 3.4% (A 5.5% vs B 1.2%, p=0.25).

Conclusion: In our experience, evolution of CAP-L patients is similar, if they are both treated with Macrolides or with Quinolones, with a low global mortality rate. 

P4368
Macrolide-resistant Mycoplasma pneumoniae in adolescents with community-acquired pneumonia
Naozuka Miyashita1, Yasuhito Kawai2, Mika Kubo3, Kazunobu Ouchi3, Niro Okimoto1. 1Department of Internal Medicine I, Kawasaki Medical School, Okayama, Japan; 2Department of Pediatrics, Kawasaki Medical School, Okayama, Japan

Background and objective: Although the prevalence of macrolide-resistant (MR) Mycoplasma pneumoniae isolates in Japanese pediatric patients has increased rapidly, there have been no reports concerning MR M. pneumoniae infection in adolescents aged 16 to 19-years old. The purpose of this study was to clarify the prevalence and clinical characteristics of MR M. pneumoniae in adolescent patients with community-acquired pneumonia.

Methods: A total of 61 cases with M. pneumoniae pneumonia confirmed by polymerase chain reaction (PCR) and culture were analyzed. Thirty-two cases were pediatric patients less than 16 years old, 14 cases were 16 to 19-year-old adolescent patients and 15 cases were adult patients. Primers for domain V of 23S rRNA were used and DNA sequences of PCR products were compared with the sequence of an M. pneumoniae reference strain.

Results: Twenty-two of 32 pediatric patients less than 16-years old, eight of 14 adolescent patients aged 16 to 19-years old and five of 15 adult patients with M. pneumoniae pneumonia were found to be infected with MR M. pneumoniae. Among 22 pediatric MR patients, 18 had an A-to-G transition at position 2063 (A2063G) and four had an A-to-G transition at position 2064 (A2064G). Among eight adolescent MR patients, six showed an A2063G transition and two showed an A2064G transition.

Conclusions: The prevalence of MR M. pneumoniae is high among adolescent patients as well as pediatric patients less than 16-years old. To prevent outbreaks of M. pneumoniae infection, especially MR M. pneumoniae, in closed populations including among families, in schools and in university students, physicians should pay attention to MR M. pneumoniae.

P4369
Comparative study of community-acquired pneumonia between diabetic and non-diabetic patients with hyperglycaemia
Amina Urutua1, Rafael Zalacain1, Ainhoa Gomez1, Lorea Martinez-Indart2, Carmen Jaca1, Maria Alfonso1, Ruth Diez1, Marta Inchausti1, Luis Alberto Ruiz1. 1Pneumology, Cruces Hospital, Barakaldo, Bizkaia, Spain; 2Epidemiology, Cruces Hospital, Barakaldo, Bizkaia, Spain

Aim: To study the differences in clinical presentation and evolution of community acquired pneumonia (CAP) between patients with known-diabetes and non-diabetic but with hyperglycemia status (HG) at hospital admission.

Methods: We performed a prospective, observational study of patients admitted to Pneumology department consecutively with a diagnosis of CAP. The plasma glucose levels were measured on admission and patients were divided into two groups: diabetic patients and non-diabetic with HG. We consider HG when plasma glucose level was ≥200mg/dl. We studied different variables, included severe clinical course (mortality and/or septic shock and/or invasive mechanical ventilation (IMV) during hospital stay.

Results: We studied 1389 patients, 274 were known diabetic and 53 (3.8%) were non-diabetic with HG.

Table 1
<table>
<thead>
<tr>
<th></th>
<th>Diabetic</th>
<th>Non-DM with hyperglicemia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>69.5</td>
<td>71.6</td>
</tr>
<tr>
<td>Respiratory frequency (bpm)</td>
<td>21.7</td>
<td>24.0</td>
</tr>
<tr>
<td>Clinical stability (days)</td>
<td>4.3</td>
<td>6.8</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>6.7</td>
<td>12.1</td>
</tr>
<tr>
<td>Mortality</td>
<td>3.3%</td>
<td>25.2%</td>
</tr>
<tr>
<td>Respiratory comorbidity</td>
<td>53.8</td>
<td>77.4</td>
</tr>
<tr>
<td>Hypoxemia</td>
<td>16.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Typical auscultation</td>
<td>59.4</td>
<td>25.0</td>
</tr>
<tr>
<td>Plural effusion</td>
<td>2.2</td>
<td>13.2</td>
</tr>
<tr>
<td>ICU admission</td>
<td>8.8</td>
<td>18.9</td>
</tr>
<tr>
<td>IMV</td>
<td>4.0</td>
<td>11.3</td>
</tr>
<tr>
<td>FINE score ≥3</td>
<td>84.7</td>
<td>83.5</td>
</tr>
<tr>
<td>Mortality</td>
<td>6.2</td>
<td>9.4</td>
</tr>
</tbody>
</table>

Conclusions: 1. Non-diabetic patients with HG had a more severe clinical course comparing ventilated patients, although mortality was similar. 2. Non-diabetic patients with HG had more respiratory comorbidities, reached clinical stability later, had a higher admission to ICU and needed more IMV, with a longer hospital stay. 3. 4% of patients admitted with a CAP had a not-known HG.
Factors associated with compliance with palivizumab treatment in the Canadian rSV evaluation study for synagis (CARESS) registry (32005-2011)

Ian Mitchell1, Bosco Paes2, Abby Li3, Krista Lancellotti4. 1Pulmonology, University of Calgary, AB, Canada; 2Pulmonology, McMaster University, Hamilton, ON, Canada; 3Sunnybrook Hospital, University of Toronto, ON, Canada

Objective: Determine factors affecting compliance in palivizumab use.

Methods: Registry of infants who received ≥1 dose of palivizumab during 6 RSV seasons. Demographic data collected at enrolment. Data on palivizumab utilization, compliance, and outcomes (respiratory illness - RI) collected monthly.

Compliance interval between doses, and percentage of expected injections received.

Results: 10,652 infants enrolled, 7,492 (71.7%) complied with timing of doses. 91.9% ≥27.1% of expected injections received. Greater proportion of non-compliant infants were hospitalized for RI (7.5% versus 6.0%, p = 0.005), compliance did not affect RSV-positive hospitalizations (1.7% versus 1.5%, p = 0.177).

Compliant infants (all >0.05): were younger at enrolment (5.4±3.5 versus 5.9±3.6 months), had siblings (61.3% versus 58.5%), were a multiple (29.7% versus 27.2%), and had >5 household individuals (23.9% versus 21.7%). More non-compliant infants had smoke exposure (30.5% versus 28.4%, p = 0.033).

Six factors influenced compliance in regression analysis: age (HR=0.989, 95%CI 0.982-0.996, p = 0.002), siblings (HR=1.104, 95%CI 1.007-1.211, p = 0.034), >5 household individuals (HR=1.144, 95%CI 1.001-1.241, p = 0.047), smoke exposure (HR=0.891, 95%CI 0.811-0.980, p = 0.018) and CHD (HR=0.805, 95%CI 0.700-0.927, p = 0.002), and RI-related hospitalization (HR=0.837, 95%CI 0.705-0.903, p = 0.043).

Conclusions: Siblings and >5 household individuals is associated with increased treatment compliance; being older, smoke exposure, having CHD and being hospitalized with decreased compliance.

Therapeutic outcomes for cavitary Mycobacterium avium complex (MAC) lung disease

David Griffith, Barbara Brown-Elliot, Sarah Shepherd, Julie Philley.

Richard Wallace. Medicine and Microbiology, University of Texas Health Science Center, Tyler, TX, United States

Beginning in 1992, patients were enrolled in a series of prospective clinical trials investigating the safety and efficacy of 3 or 4 drug macrolide-containing regimens for treating cavitary MAC lung disease. Based on these studies subsequent MAC lung disease patients received similar regimens. All patients were diagnosed according to contemporary nontuberculous mycobacterial (NTM) diagnostic guidelines. Patients are included in this analysis only if they had a macrolide susceptible MAC isolate prior to initiation of therapy and subsequently tolerated a 3 to 4 drug regimen consisting of macrolide, ethambutol, and a rifamycin (rifampin or rifabutin) ± injectable agent (streptomycin or amikacin) administered daily or three times weekly. There were 240 patients in the intent to treat analysis with a mean age 63.2±12.4 years (range 35-90 years) who were 76% male, 80% white and 75% current or ex-smokers (≥10 pack years smoking). 134 patients had adequate records available for treatment outcome evaluation. 86/134 (64%) had sputum AFB culture conversion while on therapy. Over the study period, the all cause mortality was 57% for the intent to treat cohort and 41% for patients with sputum AFB culture conversion on therapy. We conclude that cavitary MAC lung disease can be effectively treated with macrolide-based regimens but is associated with high all cause mortality regardless of MAC treatment response.

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Respiratory rate, mean
Respiratory disease, % 36 24 0.043
CURB-65 class 2, % 7 6
Previous antibiotic (2 months), % 23 25 0.495
CPR (mg/dl), mean
PSI class IV, % 10 3
Diabetes mellitus, % 15 8 0.111
Pleural effusion, % 1.3 7.2 0.057
Cardiac failure, % 7 2 0.032

Results: between LVX and AMC/AZT patients we analysed them together.

Methods: A retrospective analysis was conducted on 300 patients prospectively


Results: The spectrum of bacterial resistance in the lower respiratory tract infections at Ordasie Pneumology Hospital

Lavinia Davidescu, Natalia Zaporojan. Pneumology, Pneumology Hospital, Oradea, Bihor County, Romania

Aim: Estimation of patient protection (Enterobacteriaceae: Klebsiella, E. coli, Proteus, Enterobacter, Pseudomonas) isolated from different pathological products to antibiotics currently used in clinical practice: ampicillin, amoxicillin + sulbactam, amoxicillin + clavulanic acid, cefotaxime, ceftriaxone, ceftriaxone. Material and method: Sensitivity and resistance of these pathogens to antibiotics was determined by performing diffusion antibiogram from bacterial cultures isolated from pathological products collected from patients diagnosed with lower respiratory infections and admitted to the Pneumology Hospital Oradea in 2011. In carrying out our study we used 4358 bacterial cultures isolated from pathological products: sputum, bronchial lavage, bronchial aspirate. Results and conclusions: From 4358 bacterial cultures, 128 were represented by Klebsiella, 68 of E. coli, 131 of Pseudomonas, 40 of Enterobacter, 98 of S. aureus, 8 of Proteus. At Meropenem, Pseudomonas spp became resistant, Klebsiella and Proteus sensitivity did not change, while Staphylococcus sensitivity decreased although it remained responsive to this antibiotic. E. coli has retained sensitivity to the action of Ampicillin + Sulbactam. In contrast to the other germs, that we found a tendency to the development resistance to Ampicillin + Sulbactam, only E. coli and Klebsiella species have intermediate sensitivity to Ampicillin + Sulbactam. At Klebsiella and Enterobacter we found tendency to installation of resistance to this antibiotic. We noticed a tendency to definitive Ampicillin resistance at the following pathogens: E. coli, Klebsiella spp, Enterobacter spp, Proteus spp.
P4380
Pulmonary nocardiosis in a teaching hospital in the Central Anatolia of Turkey: Clinical experience in 26 patients
Fatma Sema Oymak1, Nuri Tutar1, Duygu Percin2, Orhan Yıldız3, Aydin Unal4, Afra Yıldırım5, Fahit Kurnaz6, Aşıye Kanbay1, Hakan Buyukoglan1, Inci Gulmez1, Ramazan Demir1.1Department of Chest Diseases, Erciyes University Medical Faculty, Kayseri, Turkey; 2Department of Microbiology, Erciyes University Medical Faculty, Kayseri, Turkey; 3Department of Infectious Diseases and Clinical Microbiology, Erciyes University Medical Faculty, Kayseri, Turkey; 4Department of Internal Diseases, Nephrology Unit, Erciyes University Medical Faculty, Kayseri, Turkey; 5Department of Radiology, Erciyes University Medical Faculty, Kayseri, Turkey; 6Department of Internal Diseases, Hematology Unit, Erciyes University Medical Faculty, Kayseri, Turkey

Pulmonary nocardiosis (PN) is an uncommon but severe infection caused by Nocardia spp., which can behave either as opportunistic or primary pathogens. The diagnosis of PN can easily be missed. The purpose of this retrospective study is to review the predisposing factors, clinical symptoms, microbiologic, radiographic characteristics, diagnostic procedures, treatment and outcome of the patients with PN confirmed positive culture, diagnosed in a teaching hospital over the last 11 years. Twenty-six (20 men and 6 women) adult patients with a mean age at time of 49 years (range: 21 to 72 years) were identified with PN. Half of the patients had disseminated nocardiosis (8 with dissemination to central nervous system, 5 with soft tissue and cutaneous abscess). The predisposing conditions were treatment of steroids (88%), chronic lung diseases (31%), transplantation (19%) and malignancy (19%). Mean time to diagnosis was 31 days. In 21 patients (80%), the infection occurred outside the hospital setting. Respiratory tract sampling using noninvasive techniques had a diagnostic yield of 81%, while specimens from invasive methods had a yield of 37%. The radiological changes were diverse and non-specific. Nocardia asteroides type VI (N. cyriacigeorgica) and N. farcinica were the commonest species. Treatment was started empirically, modified according to the antimicrobial susceptibility pattern, and then continued for 6–12 months. Overall mortality was 58%, with death being caused by the Nocardia infection in 7 patients (27%). PN is a rare infection and mainly affects immunocompromised patients. Higher index of suspicion is needed for earlier diagnosis and treatment to improve prognosis.