5050

Is doxycycline the right choice to treat an acute respiratory *chlamydia psittaci* infection?

Annette Prohl[1], Carola Ostermann[1], Markus Lohr[1], Angela Berndt[1], Elisabeth Liebler-Tenorio[1], Michael Rothe[2], Konrad Sachse[1], Petra Reinhold[1].
[1]Institute of Molecular Pathogenesis, Friedrich-Loeffler-Institut, Jena, Germany; [2]LIPIDOMIX GmbH, Lipidomix, Berlin, Germany

Introduction: Although tetracycline has been known as a front-line antibiotic for treatment of *Chlamydia* infections, information about its efficacy is contradictory.
Objectives: The aim of this study was to assess the effects of doxycycline treatment in a bovine model of respiratory *Chlamydia psittaci (Cp)* infection. To address aspects of both human and veterinary medicine, doses were adjusted to humans and cattle.
Animals & Methods: Eighteen calves aged 6-8 weeks were inoculated with *Cp* as described previously [1]. With appearance of the first clinical signs (about 30 hours after inoculation), doxycycline was applied orally for 13 days (dosis: either 5 mg/kg/day or 10 mg/kg/day). In addition to the two treatment groups (each n=6), six infected calves served as untreated controls. All animals were clinically examined on a daily basis. Broncho-alveolar lavage was performed at days 5 and 9 after inoculation (dpi). At 14 dpi, all animals were sacrificed.
Results: Treatment with doxycycline did not improve clinical outcome. In BALF, no significant differences in cytology, total protein or eicosanoids were found between the groups at any time point. At necropsy, neither the percentage of lung affected nor the morphology of pulmonary lesions differed significantly between the groups. Using quantitative real-time PCR, the amount of chlamydial genome copies detected in the affected lung areas did not differ significantly.
In conclusion, results do not support the use of doxycycline for successful antimicrobial treatment of acute *Chlamydia psittaci* infection.
Reference: [1] Reinhold *et al.* (2012) *A bovine model of respiratory Chlamydia psittaci infection: challenge-dose titration.* PLoS ONE 7, 1:e30125.

5051

Underlying clinical conditions and invasive pneumococcal disease (IPD) in adults in Spain (ODIN study, 2010-2012)

Antoni Torres[1], Marta Rodríguez-Créixems[2], Inmaculada Grau[3], Luis Molinos[4], Pedro Llinares[5], José Luis De la Cruz[6], Olga Rajas[7], Inmaculada Alfageme[8], Miguel Salavert[9], Asunción Fenoll[10], Josefina Liñares[11], Isabel Cifuentes[12].
[1]Pulmonology, Hospital Clinic, Barcelona, Spain; [2]Microbiology and Infectology, Hospital Universitario Gregorio Marañón, Madrid, Spain; [3]Infectology, Hospital Universitari De Bellvitge, Barcelona, Spain; [4]Pulmonology, Hospital Central De Asturias, Oviedo, Spain; [5]Infectology, Complejo Hospitalario Universitario A Coruña, A Coruña, Spain; [6]Pulmonology, Hospital Regional Universitario Carlos Haya, Málaga, Spain; [7]Pulmonology, Hospital Universitario De La Princesa, Madrid, Spain; [8]Pulmonology, Hospital Nuestra Señora De Valme, Sevilla, Spain; [9]Infectology, Hospital Universitario y Politécnico La Fe, Valencia, Spain; [10]Centro Nacional De Microbiología, Instituto Carlos III, Madrid, Spain; [11]Microbiology, Hospital Universitari De Bellvitge, Barcelona, Spain; [12]Medical, Pfizer España, Madrid, Spain

Background: Some underlying clinical conditions are known to increase the risk of IPD in adults.
Objectives: This study aimed to explore medical conditions by age group and previous vaccination history in adults with IPD.
Methods: Prospective surveillance of culture-confirmed IPDs in adults (≥18 years) performed in 9 Spanish hospitals (August 2010-June 2012).
Results: 436 cases (mean age 62.7;17.4 years; 58.7% males) were included. No differences were seen in immune status or underlying diseases with respect to age (62.0;16.3 and 63.2;18.1 in immunocompromised and inmunocompetent patients, respectively; p=0.30; 63.1;16.9 and 58.7;20.7 in patients with ≥1 and without underlying conditions, respectively; p=0.18). The most frequent clinical presentation was invasive pneumonia (303; 69.5%). 19% had received polysaccharide pneumococcal vaccine (PPV). No differences were found in the outcome according to PPV vaccination history. Case fatality rate was 13.3% and 40% in severe sepsis. Table shows comorbidities by age group.

Table: Comorbidities by age group present in >8% patients [n (%)]

	Total	≥18 - ≤49 y.	≥50 - ≤64 y.	≥65 - ≤74 y.	≥75 y.
n	436	114	113	72	137
Smokers*	128 (29.4)	56 (49.1)	44 (38.9)	14 (19.4)	14 (10.2)
Chronic respiratory dis.*	116 (26.6)	14 (12.3)	25 (22.1)	19 (26.4)	58 (42.3)
COPD*	71 (16.3)	5 (4.4)	18 (15.9)	11 (15.3)	37 (27.0)
Asthma	32 (7.3)	8 (7.0)	7 (6.2)	4 (5.6)	13 (9.5)
Others*	20 (4.6)	1 (0.9)	2 (1.8)	6 (8.3)	11 (8.0)
Previous pneumonia	81 (18.6)	26 (22.8)	14 (12.4)	16 (22.2)	25 (18.2)
Diabetes mellitus*	77 (17.7)	7 (6.1)	13 (11.5)	25 (34.7)	32 (23.4)
HIV/AIDS*	58 (13.3)	38 (33.3)	18 (15.9)	1 (1.4)	1 (0.7)
Immunodeficiency	45 (10.3)	10 (8.8)	13 (11.5)	11 (15.3)	11 (8.0)
Heart insufficiency*	70 (16.1)	1 (0.9)	7 (6.2)	16 (22.2)	46 (33.6)
Alcohol intake*	50 (11.5)	16 (14.0)	27 (23.9)	5 (6.9)	2 (1.5)
Chron. renal insufficiency*	39 (8.9)	1 (0.9)	6 (5.3)	7 (9.7)	25 (18.2)
Stroke*	39 (8.9)	1 (0.9)	2 (1.8)	7 (9.7)	29 (21.2)
Comorbidities (≥1)	393 (90.1)	97 (85.1)	103 (91.2)	68 (94.4)	125 (91.2)
No comorbidities	43 (9.9)	17 (14.9)	10 (8.8)	4 (5.6)	12 (8.8)

* Global significant differences in age groups (p<0.05)

Conclusions: The high frequency of IPD cases in patients with chronic respiratory disease and/or smoking supports the need for a new approach in the management of these underlying conditions. Facing limitations of PPV, vaccination with PCV13 could be a better strategy.
This study was sponsored by Pfizer.

486. Cystic fibrosis: lung function and change of lung function in infants and children before and after treatment

5052

Normal lung function in infants with cystic fibrosis shortly after birth

Elisabeth Kieninger[1], Sophie Yammine[1], Elena Proietti[1], Carmen Casaulta[1], Nicolas Regamey[1], Urs Frey[2], Philipp Latzin[1], The Swiss Cystic Fibrosis Newborn Screening Group.
[1]Division of Pulmonology, Department of Paediatrics, Inselspital, University of Bern, Bern, Switzerland; [2]Department of Paediatrics, University Children's Hospital of Basel, Basel, Switzerland

Background In children with cystic fibrosis (CF) small airway disease can occur early in life.
Objective To assess ventilation heterogeneity, a marker of small-airway function, shortly after birth in infants with CF diagnosed by newborn screening.
Methods We performed multiple-breath washout (MBW) using 4% sulfur hexafluoride and tidal breathing measurements in 23 infants with CF, aged median (range) 6.3 (3.9 – 12.6) weeks and compared it to a previously reported equipment and tracer-gas specific normative data population of 305 healthy infants, aged median 5.0 (3.6 – 8.7) weeks (Fuchs et al, ERJ 2011). We compared lung clearance index (LCI), functional residual capacity (FRC) and the following tidal breathing parameters: Tidal volume, respiratory rate, minute ventilation, mean and peak tidal inspiratory and expiratory flow and the ratio of time to peak tidal expiratory flow to expiratory time.
Results Compared to controls, and after adjustment for body weight and age, LCI was normal in infants with CF (mean difference (95% CI) 0.28 (-0.19 to 0.74) z-scores, p = 0.24), as was FRC (mean difference (95% CI) 0.40 (-0.05 to 0.85) z-scores, p = 0.08) and tidal breathing parameters. Only one infant with CF had elevated LCI (> 1.96 z-scores), while none showed elevated FRC.
Conclusions CF infants show normal LCI values shortly after birth and thus no sign of ventilation inhomogeneity. The fact that all other parameters are also normal reflects the still undamaged state of the lungs. This highlights the importance of early therapy to maintain normal lung function as long as possible.