

MONDAY, SEPTEMBER 3RD 2012

mean Pneumonia Severity Index (PSI) scores were 101.8 ± 35.8 and 91.0 ± 28.9 ($p=0.006$) and CURB-65 scores were 2.3 ± 1.0 and 2.0 ± 0.8 ($p=0.002$), respectively. The length of hospital stay was 9.5 ± 6.1 days in the combination and 8.5 ± 4.4 days in the FQ groups ($p=0.24$). The rates for cure, partial improvement and mortality were 59.1%, 28.2%, 12.8% for the combination group versus 72.6%, 24.2%, 3.2% for the FQ group, respectively. There was no significant difference between the improvement rates; on the other hand, the mortality was higher in the combination group ($p=0.03$). Logistic regression analysis showed that mortality was associated with PSI score and not with the choice of antibiotic treatment. In this retrospective analysis of TURCAP database, the clinical success rates were similar in patients who received a combination of beta lactam and macrolide and fluoroquinolone monotherapy. The lower mortality observed in the latter group was found to be associated with less severe disease at presentation.

P2454**Pharmacokinetics and pharmacodynamics of newer fluoroquinolones in patients with lower respiratory tract infections**

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Introduction: Levofloxacin (LVF) and moxifloxacin (MXF), have been recommended as first line therapy for patients with acute exacerbations of chronic bronchitis and community-acquired pneumonia.

Aim: The aim of this study is to evaluate the pharmacokinetic (PK) and pharmacodynamic (PD) parameters of LVF and MXF for lower respiratory tract infections (LRTI).

Methods: Eighteen patients (2 groups of 9, aged 69.6 ± 8.7 and 74 ± 8.8) with LTRI received 500 mg LVF IV q12h or 400 mg MXF IV q24h. Serial blood samples were obtained at steady state condition (3rd day of therapy). Plasma concentrations were determined by a validated HPLC method. The PD target was evaluated for both antibiotics based on our hospital's MIC₉₀ of the most common respiratory pathogens.

Results: The PK data are presented in Table 1.

Table 1. PK data

	Cmax (µg/mL)	AUC24 (hr·µg/mL)	CL (L/hr)	T1/2 (h)	Vss (L)
LVF	6.26±1.02	53.98±18.97	20.5±7.8	9.49±6.14	208.6±87.7
MXF	4.86±1.1	38.02±5.57	10.7±1.3	14.52±6.95	171.9±66.8

Both antibiotics exhibited large volumes of distribution (Vss). They achieved the PD target in all patients against the majority of strains of the commonest respiratory pathogens in our hospital, as shown in table 2.

Table 2. PD data

	AUC/MIC (<i>S. pneumoniae</i>)	AUC/MIC (<i>H. influenzae</i>)	AUC/MIC (<i>M. catarrhalis</i>)
LVF	AUC/0.5 107.97±37.94	AUC/0.03 1799.47±632.25	AUC/0.06 899.74±316.13
MXF	AUC/0.25 152.08±22.27	AUC/0.006 633.68±92.78	AUC/0.006 633.68±92.78
	p=0.005	p<0.001	p=0.102

Conclusions: LVF and MXF exhibit a favorable PK profile in patients with LRTI. There is adequate PD exposure against most strains of *S. pneumoniae*, *H. influenzae* and *M. catarrhalis* with low MICs.

P2455**Combination therapy (beta-lactam+macrolide) vs fluoroquinolone monotherapy for the treatment of CAP**

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Background: According to the 2007 IDSA/ATS guidelines for the treatment of CAP monotherapy with fluoroquinolones is the first choice and combination therapy remains an alternative treatment option. Combination therapy was the first recommended treatment option by the 2003 IDSA update of practice guidelines for the treatment of CAP.

Aim of study: The aim of this study was to assess whether any of the two proposed alternative treatment options for CAP is statistically superior and related with advanced clinical course.

Material and methods: A prospective observational study which incorporated 300 immunocompetent adults, who referred to the ER of "Sotiria" General Hospital for Thoracic Diseases and after diagnosed with CAP, were all hospitalized.

Results: 250 patients (83.33%) received combination therapy and 50 patients

263. Management of severe respiratory infections

P2453**Comparison of treatment outcomes in community-acquired pneumonia patients treated with beta lactam-macrolide combination versus fluoroquinolone monotherapy**

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The clinical outcomes of patients with community-acquired pneumonia treated in accordance with the recommendations of Turkish Thoracic Society (TTS) guidelines and who had received beta lactam-macrolide combination or fluoroquinolone (FQ) monotherapy were evaluated using the data from four contributing sites to the TURCAP database of TTS Assembly of Respiratory Infections. A total of 343 patients was included. Of these patients, 63.6% had received combination treatment and 36.4% had received FQ monotherapy. There was no difference between the two groups regarding age, gender and comorbidities. However, the

(16.67%) received monotherapy with fluoroquinolone. 235 (94%) out of the 250 patients who received combination therapy had a favourable clinical course (survived) and 15 (6%) had an unfavourable clinical course (died). 42 (85%) out of the 50 pts who received monotherapy with fluoroquinolone survived and 8 (15%) of them died. The mortality rate of the second group was significantly higher than the mortality rate of the first group (15% vs 6% respectively, $p=0.033$).

Conclusion: The mortality rate of hospitalized patients with CAP receiving monotherapy with fluoroquinolones was significantly higher compared to patients receiving combination therapy. There are a few other studies supporting these results and one possible explanation could be the immunomodulating activity of macrolides, which is verified but still a field of detailed, extended and persistent investigation.

P2456

Tolerance of nebulised gentamicin in adult bronchiectasis – A single centre study

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Background: British Thoracic Society non CF bronchiectasis (nCFBr) guidelines suggest that long-term nebulised antibiotics should be considered in patients with more than 3 exacerbations per year. Nebulised gentamicin reduces bacterial load and exacerbations in nCFBr. Adverse effects can occur with aerosolized delivery of antimicrobials and so limit their use. We studied the tolerability of nebulised gentamicin in a real world population

Methods: We measured spirometry in nCFBr patients challenged with 80mg of nebulised gentamicin, at baseline, 1min, 5min, and 10min post nebulised gentamicin. Long term tolerability and benefits were assessed

Results: Forty-two patients (19male:23female) were enrolled Feb 2010-Dec 2011. Mean age was 60yrs (range 17-77). Colonisation with *P.aeruginosa*, *H.influenzae* and *S.aureus* was seen in 17(40%), 11(26%) and 4(9%) patients respectively. Mean baseline FEV1 was 1.48L/min (56% pred), range 0.3-3.75L/min (16-108% pred). Mean FEV1 was preserved at 1min (1.45L/min), 5min (1.52L/min) and 10min (1.53L/min) post nebulised gentamicin. There was no difference between pre-dose and 10min post-dose FEV1 ($p>0.05$). One patient was unable to tolerate the nebulised challenge due to fall in FEV1 and symptoms. Long-term, 8 patients (19%) were unable to tolerate nebulised gentamicin due to side effects. It was stopped in 5 patients (12%) as they did not report benefits

Conclusions: These data show nebulised gentamicin is well tolerated in acute challenges even in patients with severe airflow obstruction but long-term adherence declines. We aim to present microbiological data. The utility of acute challenge tests remain unclear in predicting longer term tolerability.

P2457

An audit of microbiological investigations performed on patients admitted with community acquired pneumonia

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Introduction: The British Thoracic Society (BTS) guidelines suggest that blood and sputum culture be performed in patients with moderately severe community-acquired pneumonia (CAP). Atypical testing and viral PCR are recommended in severe CAP.

The aim was to identify whether the appropriate microbiological investigations are being performed on patients with CAP.

Method: This was a retrospective audit. CAP was defined as a clinical diagnosis of pneumonia in a patient with a new radiographic infiltrate. Microbiology investigations performed in CAP patients were compared against the same data collected in 94 CAP patients in 2008. The 2009 BTS guidelines served as the audit standard.

Results: 210 patients were included. 55% had blood cultures taken, with bacteraemia confirmed in 15 patients. This compared with 70% having blood cultures in 2008, $p=0.02$.

16% (34) had sputum culture compared with 25% (24) in 2008, $p=0.06$.

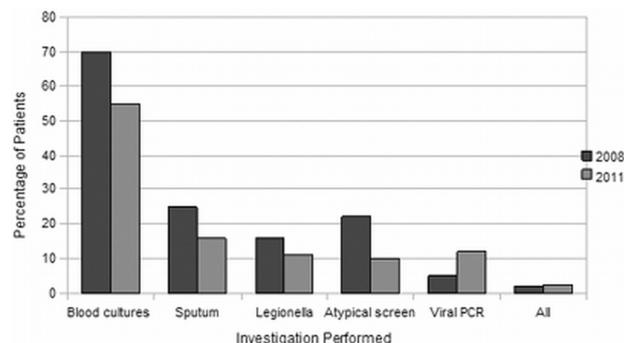


Figure 1. Microbiological investigations performed on CAP patients.

11% had legionella antigen analysis compared with 16% in 2008. 10% had atypical serology carried out in 2011 and 22% in 2008. 12% had viral PCR compared to 5% in 2008.

In total, only 2.4% of patients had all of the recommended microbiology investigations (2.1% in 2008). 35.2% had no microbiology testing (21% in 2008, $p=0.02$).

Conclusions: Recommended microbiology investigations are underutilised in CAP patients. There has been a reduction in microbiological testing in comparison with 2008 figures.

P2458

Management of community acquired pneumonia (CAP) in a UK district general hospital (DGH)

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Background: Although there are published BTS guidelines [Thorax 2009;64(Suppl III)] for the management of CAP; its practice across UK hospitals is variable and at times lacking; in achieving satisfactory outcomes.

Objectives: To audit the management of patients admitted with CAP in a UK DGH.

Method: A retrospective audit was undertaken between the periods covering 01/10/2010-31/08/2011. We included all patients admitted through the emergency or community referral system with a radiological diagnosis of pneumonia. We excluded patients who were immunocompromised or under 16 years of age.

Results: A total of 56 patients (59% female; n=33) were included. CURB-65 score was documented in 20% (n=11). With regards to anti-microbial treatment, 12.7% (n=7) patients were given B-lactam alone, 76.3% (n=42) were given B-lactam + Macrolide, 10.9% (n=6) were given Levofloxacin and one patient each received either Metronidazole or gentamycin. Time between diagnosis and first dose of antibiotic was greater than 4 hours in 57.3% (n=32) patients. 27% (n=15) patients received antibiotics against the published local guidelines (local guidelines followed BTS guidelines).

Total length of stay varied from 0-101 days with a median of 7.5 days. There were 6 deaths within 30 days of discharge, of which 2 died on admission.

Conclusions: Despite guidelines, there was poor documentation and recognition of the severity of CAP. There was deviation from recommended prescribing, hence risking emergence of resistant strains. Many patients received antibiotics beyond the recommended time window. Therefore, hospitals need to make sure that guidelines are being followed, in order to achieve further reduction in morbidity and mortality.

P2459

Resistance of problematic gram(-) respiratory pathogens selected from in-patients (Yaroslavl, Russia, 2011)

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Background: the problem of the spread of resistant Gram(-) agents becomes more urgent. These changes in the respiratory pathogens in hospitals create difficulties in antibiotic therapy and lead to increase of patients' lethality and the burden for general healthcare.

The aim of our study was to assess the prevalence of resistance of the problematic Gram(-) pathogens in hospitalized patients.

Methods: Pathogens were isolated from hospitalized patients in Yaroslavl. The selection of pathogens and the determination of resistance was performed centrally in the microbiological laboratory (NCCLS standards, disc-diffusion method).

Results: In 2011 in the city's hospitals 98 strains of *Ps. aeruginosae*, 71 - *Acinetobacter* spp were allocated from respiratory tract in hospitalized patients. Resistance of *Ps. aeruginosae* was extremely high practically to all drugs, including carbapenems. The only exception was polymyxin (all strains were sensitive). The average rate of resistance was 39.2%. Resistance *Ps. aeruginosae* to piperacillin/tazobactam, cefoperasone/sulbactam, imipenem, meropenem, ciprofloxacin, gentamycin, amikacin was 51, 48, 48, 49, 54, 47 and 48% respectively. At a relatively acceptable level there was observed resistance to ceftazidime, cefepime and aztreonam - 16, 23, and 15% respectively. *Acinetobacter* spp. also showed a high resistance (in average of 61.9%). Carbapenems remained active (imipenem - 99% of strains were sensitive, meropenem - 94%).

Conclusions: The problematic respiratory Gram(-) pathogens as *Ps. aeruginosae* and *Acinetobacter* spp. show high resistance to antimicrobial agents. The greatest concern is the resistance to carbapenems in *Pseudomonas aeruginosa*.

P2460**Evaluating flutter device and the active cycle of breathing technique in non-cystic bronchiectasis: The prospective randomised study**

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Background: Chest physiotherapy is an important part of the routine treatment of patients with bronchiectasis. The aim of present study was investigate the efficacy of two frequently used physiotherapies in bronchiectasis: active cycle of breathing (ACTB) techniques and the Flutter device.

Methods: A prospective randomized study was performed in 36 stable patients with non-cystic bronchiectasis at home, in which 4 weeks of daily ACTB (n=17) were compared with the Flutter device (n=19). We compared symptoms, pulmonary function tests, dyspnea scores and Health-Related Quality of Life with two different physiotherapy techniques.

Results: We determined cough and weakness was reduced (respectively p=0,000, p=0,004), sputum expectoration was increased (p=0,002), dyspnea score was reduced (for Medical Research Council p=0,001, for Borg Dyspnea Scale p=0,002) and Short Form-36 (SF-36) 'Physical Health' component summaries score was improved partly (p=0,001) with physiotherapy. No significant changes were note FVC, FEV1 or symptoms between the two techniques. We found only significantly general health (p=0.048) and pain feeling (p=0.011) scores in SF-36 with the Flutter.

Conclusions: Chest physiotherapy is a effective method increasing sputum expectoration, reducing symptoms and dyspnea score and partly improvement Health-Related Quality of Life. ACTB and Flutter techniques are suitable usage at home-based treatment.

P2461**RCT of chest physiotherapy versus chest physiotherapy and pulmonary rehabilitation in non cystic fibrosis bronchiectasis**

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Aim: To assess the efficacy of pulmonary rehabilitation(PR) in addition to regular chest physiotherapy in non-cystic fibrosis bronchiectasis.

Methods: Patients with bronchiectasis were invited to participate if their exercise tolerance was limited, due to bronchiectasis, from Edinburgh Bronchiectasis clinic, in a prospective study. 15 received chest physiotherapy and 15 received PR+chest physiotherapy. Review was at baseline/4 weeks/8weeks(end of intervention)and 20 weeks(completion of study). Outcome measures were improvement in incremental shuttle walking test(ISWT), endurance walk test(EWT), health related quality of life(HRQoL)-St.Georges Questionnaire(SCRQ) and Leicester Cough Questionnaire(LCQ).

Results: Results are presented as mean(standard error). The minimum clinically important difference(MCID) for SCRQ and LCQ was 4 and 1.3 units respectively. Comparison of changes between the 2 groups was calculated using unpaired t-tests. **Conclusion:** PR in addition to regular chest physiotherapy, improves exercise tolerance and HRQoL in bronchiectasis and the benefit was sustained at 3months post end of PR.

P2462**Unexpectedly high incidence of pneumothorax in patients with pulmonary Mycobacterium avium complex infection**

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Objectives: Pneumothorax in patients with pulmonary *Mycobacterium avium* complex (MAC) infection has been considered rare and little is known about its clinical course. In this study we aimed to analyze the clinical features, outcome, and prevalence of pneumothorax in pulmonary MAC infection.

Methods: The clinical records of all 18 patients with active pulmonary MAC infec-

tion complicated with pneumothorax in eight years between 2003 and 2010 were retrospectively analyzed. The complication rate of pneumothorax in pulmonary MAC infection was calculated based on the number of all active pulmonary MAC patients in our institute during the same period.

Results: The patients were eight males and ten females with a mean age of 75 years (range 50-89). Thirteen patients were with *M. avium*, one with *M. intracellulare*, four with unidentified MAC, and none with HIV infection. Pneumothorax occurred on the right lung in twelve patients and on the left in six. All but one patient had MAC disease in both lungs, and twelve patients had widespread lesions with total area more than one lung field. Seven of 18 patients (39%) were forced to undergo surgical operation following unsuccessful thoracic drainage. Five patients experienced the recurrence during the period and other two eventually stayed with chronic pneumothorax. The complication rate of pneumothorax in active pulmonary MAC infection was as high as 2.4% (18 out of 746 all MAC patients), 2.1% in female and 3.0% in male patients.

Conclusions: The incidence of pneumothorax in patients with pulmonary MAC infection is unexpectedly high, especially in elderly, male, and progressed MAC disease. It is often difficult to treat and easy to recur.

P2463**Effects of nebulizer therapy by hypertonic saline, gender and breastfeeding on evolution of acute bronchiolitis**

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Acute bronchiolitis is most common viral infection of lower respiratory tract in infants. In 90% it is caused by respiratory syncytial virus.

One of the main protective factors from infants morbidity is breast milk. In literature is data about infants gender factor in risks of acute respiratory infections. Reveal influence of breastfeeding (BF) on evolution of infant's acute bronchiolitis(AB) in gender aspect, assuming results of nebulized therapy by hypertonic saline (HS).

A retrospective study of medical records in Pediatric Clinic (2010-2011) was carried out. The data was statistically analyzed in the program packet _SPSS 16.0. The data of 86 1-12 month(s) of age infants with moderate AB was analyzed; 25-girls (29%),61-boys(71%). On exclusive BF 47(54.7%), artificial feeding - 39(45.3%).The Management of AB included: respiratory therapy, hydration (oral), nebulized therapy: NaCl 0.9%, NaCl 3% solutions, bronchodilators.

We compared clinical improvement days among BF and formula fed boys and girls.

In BF infants with acute bronchiolitis the clinical improvement occurred more rapidly (2-3 day) than the formula fed infants (3-4day) (p<0.01); There was no statistically evident association between gender and feeding type in improvement day (p>0.05).

The effectiveness of nebulized HS in acute bronchiolitis is statistically significant, it improves patients clinical condition and makes a rapid recovery (p<0.01)

Study revealed higher incidence of morbidity in boys.Was evident tendency of improvement in girls. BF improves clinical condition from 2th-3th day (p<0.01).The Duration needed for clinical improvement in the group treated by 3% HS was shorter (p<0.001).

P2464**Inhaled colistin in elderly patients with bronchiectasis and chronic bronchial infection with pseudomonas**

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Bronchiectasis is the end result of several different illnesses and a frequent cause of admission in hospitals for elderly people and chronic diseases. Although many guidelines recommend treatment with inhaled antibiotics in non cystic fibrosis (CF) bronchiectasis in chronic bronchial infection with pseudomonas aeruginosa, there is limited evidence for elderly patients

Aims: To assess the effectiveness of inhaled colistin in elderly patients with non CF bronchiectasis and chronic bronchial pseudomonas infection

Methods: Prospective, controlled, randomized and open. We included patients with HRCT diagnosed bronchiectasis, after an acute exacerbation admission and appropriate antimicrobial therapy. We collected data on demographics, clinical and functional characteristics, admissions and sputum microbiology. We followed the patients for one year, evaluating microbiological results, functional tests, readmissions and exitus.

Abstract P2461 – Table 1

	Acapella only			Acapella+PR		
	Baseline	8 weeks	20 weeks	Baseline	8 weeks	20 weeks
ISWT (m)	343.33 (44.35)	338.66 (42.24)	343.33 (39.74)	287.5 (50.64)	344.16 (115.52)*	367.5 (61.51)**
EWT (m)	970.67 (143.69)	946.67 (161.55)	990.67 (156.57)	1102.5 (116.24)	1295.83 (65.84)***	1350 (72.56)
SCRQ (Units)	40.56 (3.92)	39.15 (4.47)	45.2 (4.48)	38.53 (6.42)	30.55 (6.63) [§]	34.65 (7.71) [§]
LCQ (Units)	40.56 (3.92)	14.64 (1.38)	13.62 (1.37)	12.31 (2.34)	14.9 (2.3) [§]	16.67 (1.82) [§]

p values represent differences between 2 groups (using unpaired t tests), at time points indicated. *p=0.03; **p=0.04; ***p=0.02; [§]p<0.001.

Results: We included 25 patients, 13 treated with inhaled colistin and 12 in control group. Four patients stopped the treatment because of adverse effects. Main results are shown in the table.

	Control (n=12)	Colistin (n=13)
Age	76,2	75,6
Charlson	2,7	2,6
FEV1%	41,1%	41,6%
Persistence of pseudomonas	10	6*
Change in FEV1	-1,2%	+5,6%
Hospital stay 1 year	16	28
Exitus 1 year	2	1

*Statistically significant.

Conclusions: Significant more patients in the treatment group achieved Pseudomonas eradication, but we could not demonstrate clinical or functional benefits in our elderly patients. These results may be due to small sample size. Side effects were frequent.

P2465

Changes in the lower airway bacterial community of from adult non-CF bronchiectasis population are significantly associated with exacerbations and the presence of *Haemophilus influenzae*

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Background: The aim was to investigate the polymicrobial communities in sputum samples derived from an adult non cystic fibrosis bronchiectasis (nCFBr) population using culture independent methods. The cohort consisted of 70 individuals with HRCT proven nCFBr. Twenty patients presented at the clinic for sputum collection with symptoms consistent with exacerbations, the remainder were clinically stable.

Methods: DNA was extracted from sputum samples of all patients (n=70). Universal primers were used to amplify the 16S and 28S rDNA, the resulting fragments were analysed by denaturing gradient gel electrophoresis. Demographic and culture data were used in constrained ordination analyses to identify any significant associations between these data and changes in the sputum microbiota.

Results: The presence of *P. aeruginosa* was significantly correlated with a reduced lung function. Bacterial profiles indicated a significantly different community was present in exacerbating patients compared to those that were clinically stable (P = 0.002). *H. influenzae* carriage also produced significant changes (P = 0.004) in community structure. Moreover, *H. influenzae* was never found in samples that harboured *P. aeruginosa*. Bacterial communities appeared to be randomly assembled. Fungal taxa were scarce.

Conclusions: Bacterial communities from adult non-CF bronchiectasis patients have distinct differences between exacerbating and clinically stable episodes. Persistent colonisation by *P.aeruginosa* is significantly associated with reduced lung function, and is negatively correlated with *H. influenzae* carriage.

P2466

Rapid detection of *Mycoplasma pneumoniae* IgM antibodies using ImmunoCard *Mycoplasma* kit compared with complement fixation (CF) tests and clinical application

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Purpose: *Mycoplasma pneumoniae* is a leading cause of community-acquired pneumonia. For a rapid diagnosis of *M. pneumoniae* infection, we often use ImmunoCard *Mycoplasma* kit (IC), a 10-min-card-based enzyme-linked immunosorbent assay (ELISA) of IgM antibodies to *M. pneumoniae*. However, widespread clinical application of this test is hampered by an inability to identify pathogen directly with adequate sensitivity and specificity. Therefore, we examined the clinical usefulness of IC test retrospectively.

Method: We evaluated 316 samples which are measured by IC from October,2008 to March,2009. We also compared IC with the complement fixation (CF) test, and estimated false positive and negative rate based on the clinical course and other laboratory findings.

Results: Among 316 samples, 69 (21.8%) were positive of IC and 247 (78.2%) negative. Sixteen cases were also measured by CF test with the paired serum, and in 5 (31.3%) cases of these, there was a discrepancy between the result of IC and that of CF test. On the basis of a clinical diagnosis, IC gave the false positive rate of 80.0%, false negative rate of 31.3%.

Conclusion: IC has so far been attributed to the rapid diagnosis of *M. pneumoniae* infection because it is unnecessary to use paired serum and possible to judge the infection rapidly. But a positive result of IC does not always indicate acute infection because the result of IC were not always concordant with that of CF test. According to our results, it seems that the interpretation of the result of IC is very difficult in order to use it clinically.

P2467

Legionella pneumoniae in patients hospitalized with community-acquired pneumonia (CAP) in Norway

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Introduction: European studies have reported that *Legionella pneumoniae* accounts for 0-10% of the cases of CAP in hospitalized patients. In Norway, data on the etiology of CAP in hospitalized patients is limited, and *Legionella pneumoniae* has been considered a rare disease.

Aim: To investigate the frequency of *Legionella pneumoniae* among hospitalized CAP-patients in Norway.

Methods: Adult patients with radiologically confirmed CAP were prospectively included at the main acute care hospitals of two counties in Norway (Telemark and Østfold) during a 20-month study period in 2007-2008. Microbiological analyses included culture of blood and sputum, urinary antigen testing for *Streptococcus pneumoniae* and *Legionella pneumophila* serogroup 1, real time polymerase chain reaction (PCR) of a throat swab for atypical agents, and serology for *L. pneumophila* serogroup 1-6.

Results: A total of 374 patients were included in the study. *Legionella pneumoniae* was identified in 21 cases (6%). Eight cases were identified during the hospital stay by urinary antigen testing, and 13 cases were identified later by serology, of whom four were classified as probable cases (single high convalescent titer). Three of the patients were part of a small outbreak of *Legionella*, and another two patients probably were infected from the same hot tub. Two of the cases might have been travel-associated. Otherwise, *S. pneumoniae* was the most common etiological agent detected (20%), followed by *Haemophilus influenzae* (6%).

Conclusion: *Legionella pneumoniae* seems to be more prevalent than previously recognized in Norway, and testing for *Legionella* should be considered more frequently than current practice.

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Bronchiectasis in Auckland, New Zealand: Ethnic differences in severity

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Introduction: Bronchiectasis is more prevalent in Maori and Pacific Islanders (PI) than Europeans. The aim of this study was to evaluate differences in severity and microbiology between ethnicities.

Methods: Records of 250 patients (66% female, mean age 62yrs, FEV1% predicted 64.6%) attending the bronchiectasis clinic at Auckland District Health Board were retrospectively reviewed. Demographic and clinical variables were recorded. Ethnicity was compared to NZ Department Statistics 2006 census data for central Auckland.

Results: PI (23%) and Maori (12%) are over-represented in this cohort; European (44%) and Asian (16%) under-represented. Mean FEV1%predicted was higher in Europeans (70.7%) than Maori (63%) and PI (54%), p <0.0001 and remained so when corrected for smoking status p<0.0001. Similar statistically significant differences were seen in FVC %predicted. Maori patients were younger (mean age 56yrs) than PI (60yrs) and Europeans (66yrs), p=0.02. There was a trend to later diagnosis in Maori and PI compared to Europeans. 124 patients had at least one sputum sampled that year with *Haemophilus* 29%, *Pseudomonas* 13.7%, *Aspergillus* 4.8%, *Pneumococcus* 2.4% and non tuberculous mycobacteria 2.4%. There was no significant difference in sputum microbiology by ethnicity.

Conclusions: Maori and PI are over-represented in the bronchiectasis clinic and tend to be younger with more severe disease than other ethnicities. Disease severity is independent of smoking status, microbiology and gender suggesting other factors such as genetic susceptibility or socioeconomic status influence outcome.

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Pneumonia and *Clostridium difficile* infection: Hospital acquired infection in a non-ICU department

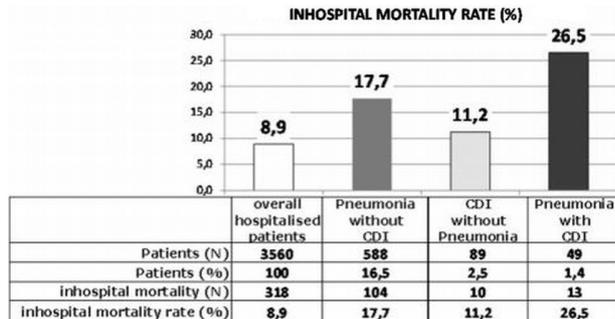
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The antibiotic use for pneumonia treatment contributes to the worldwide spreading of *Clostridium difficile* infection (CDI). Among all hospital acquired infections, CDI is an emerging cause of hospital morbidity, mortality and costs.

We investigated the prevalence of CDI acquisition rates in patients hospitalized with pneumonia and compared all causes of in-hospital mortality among patients

with and without CDI. The study considered all patients admitted to Internal Medicine Dept. of a tertiary care university hospital in Milan between 2007 to 2010. Analysis based on aggregated hospital routine data using the ICD-9-codes indicating pneumonia and CDI.

Results: Among 3560 hospital admissions, 17.9% had a diagnosis of pneumonia, 3.9% of CDI. Among overall CDI, pneumonias were 35.5%, while CDI among overall pneumonias were 7.7%. The patients with both illness were older (81.8 yrs) and had a longer length-of-stay (30.2 d). In-hospital mortality was 26.5% in the group with both pneumonia and CDI, higher than in the other groups (pneumonia 17.7%, CDI 11.2%).



It is well-known that antibiotic therapy for pneumonia, mainly based on newer fluoroquinolones, b-lactams and macrolides, combined with high-dose or long-term use of proton pump inhibitor drugs increase the risk of CDI. Our data suggest that CDI could be a very common etiology of hospital acquired infection also in non-ICU and non-outbreak setting with low endemic rate.

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Clonal typing of *P.aeruginosa* strains in non-CF bronchiectasis

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Introduction: *P.aeruginosa* is the most clinically significant infecting organism in non-CF bronchiectasis.

Aims and objectives: To determine the whether there are clonal strains within the non-CF bronchiectasis population in Northern Ireland.

Methods: In total 50 *P.aeruginosa* isolates from 26 patients were analyzed by pulse field gel electrophoresis (PFGE).

Results: There were 10 individual strains identified by PFGE band pattern after DNA macrorestriction. 5/50 isolates were unique novel strains from 5 separate individuals. There were two dominant strains in this cohort. BELFCITPA-1 in 14/50 isolates in 5 patients. 12/50 isolates in 7 patients were identified as BELFCITPA-5. Stable patients were found to have one strain per sample whereas there was greater diversity within the samples collected from patients with an exacerbation, 1.25 strains on average.

Conclusion: There are a number of common strains of *P.aeruginosa* found in the sputum of non-CF bronchiectasis patients. Although there are at least 2 clonal strains identified in this small cohort, it is unclear whether this is because they are common environmental strains in the region or because of cross-infection between individuals.

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PES in CAP: An acronym to identify "problematic pathogens" in community-acquired pneumonia

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Background: Nosocomial and Multidrug-resistant pathogens have been emerging as a cause of community-acquired infections. Recently, Rice has introduced the acronym ESKAPE for the identification of the principle pathogens responsible for nosocomial infection that frequently can "escape" the effect of antibiotic treatment. In order to translate this idea to community-acquired pneumonia (CAP), we purpose the adapted acronym PES: *Pseudomonas aeruginosa*, *Enterobacteriaceae* and *Staphylococcus aureus*.

The aim of our study is to compare clinical characteristics and outcomes of patients with CAP/HCAP due to PES pathogens respect patients with pneumonia due to other pathogens.

Methods: Among 4549 patients evaluated for CAP/HCAP, we analyzed 1470 patients which presented an etiologic diagnosis. We excluded patients with immunosuppression, neoplasm and active tuberculosis.

Results: Pneumonia due to PES was identified in 136 (9%) patients (n=64 *P. aeruginosa* n=44 *Enterobacteriaceae* n=35 *S. aureus*). These patients were older, had more frequently received previous antibiotics and presented a reduced autonomy with higher rate of aspiration episodes (p<0.001) but not a higher number of nursing-home (p=0.125). PES pathogens were more commonly identified in patients with many comorbidities (especially neurologic and chronic respiratory disease, p<0.001). PES group had more severe pneumonia by PSI score (p<0.001), longer hospital length-of-stay and 30-days mortality (p<0.001).

Conclusions: PES pathogens are responsible for CAP with high mortality. The attendant physician should be worried to empirically cover PES pathogens in patients with lower autonomy, many comorbidities and previous antibiotic treatment.

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C-reactive protein in community acquired pneumonia – Correlation with main clinical indices

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Background: C-reactive protein (CRP) has a significant role as a factor, correlating with main clinical indices of the community acquired pneumonia (CAP).

Aim: To evaluate the relationship between CRP-levels and main clinical signs of CAP – severity, length of stay, complications, outcome.

Methods: Prospective study for 1 year period. 50 patients with CAP severity CURB 65 score 2-5, treated in Pulmonary Clinic were enrolled. 17 of them were women and 33 (60%) – men, average age 54,4±14,6 y. Serum levels of CRP were tested at 1-st and 7-th day of hospital stay. Clinical indices such as concomitant diseases, length of stay, complications, antibiotic prescriptions, outcome have been studied.

Results: At admission the levels of CRP were increased up to 434 mg/dl, mean value 83,41 mg/dl (normal range 0-5mg/dl). Most of the patients (54%) had score 3 concerning CURB65, followed by 2 – 24% and 4 – 20%. 62% of them have had concomitant diseases, mainly cardiovascular – in 44% of the cases. The most frequent used antibiotic was ceftriaxone – in 92% of cases. 72% of the patients were treated with two antibiotics, 12% - with three. The duration of antibiotic treatment was average 7,26±1,69 d (from 5 to 12 days). The length of stay was 8,4 d (from 7 to 12 days). Significant relationship was established between CRP and: severity of CAP (CURB65) p<0,05, r=0,38; the duration of intravenous antibiotic treatment p<0,05, r=0,32; antibiotic prescription at leaving hospital day p<0,05, r=0,39; complications; length of stay p<0,05; r=0,30; outcome p<0,05; r=0,50.

Conclusion: CRP is a sensitive and reliable factor, correlating with the severity of CAP, length of stay and outcome.