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279. Evaluation of risk factors in community-acquired pneumonia

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Sepsis severity is an excellent predictor of mortality in pneumococcal pneumonia

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Background: Multiple severity scores have been evaluated to predict the outcome of patients with community acquired pneumonia (CAP). We compared the predictive value of the CRB-65 score and of sepsis severity in patients with pneumococcal pneumonia.

Patients: 105 hospitalized patients with community acquired pneumonia (CAP) caused by *Streptococcus pneumoniae*, mean age 64,6 (24-91) years, 59% female. Severe sepsis was defined as organ dysfunction, hypoperfusion or hypotension. Septic shock was defined as sepsis induced hypotension despite adequate fluid resuscitation. CRB-65 score was done according to published criteria.

Results: 34,3% of patients had severe sepsis ± septic shock at admission with a mortality of 30,6% compared to 65,7% without severe sepsis ± septic shock and a mortality of 0% (p=0,0001). In contrast CRB-65 score was less discriminative with a mortality of 0% for 0 points, 9,2% for 1 or 2 points and 47% for 3 or 4 points.

Discussion: The simple clinical evaluation of sepsis severity, using severe sepsis ± septic shock as prognostic parameter, has a high predictive value for mortality in hospitalized patients with pneumococcal pneumonia. The role of this test in comparison to other severity scores should be evaluated in larger cohorts of CAP with different aetiology.

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Is severity index enough to assess hospital admission of community-acquired pneumonia (CAP) patients?

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In order to analyse the characteristics of patients with CAP and low PSI (I to III) that lead to an admission in hospital, a prospective 12-months multicenter study was carried out including inpatients and outpatients with CAP diagnosis. Clinical, laboratory, radiology and prognosis data were analysed. Patients were assessed into severity groups (PSI) and special characteristics from those included in groups I

to III were studied. Chi-squared, ANOVA and multivariate analysis with logistical regression were performed.

Results: The overall number of patients was 1314; 643 were classified as low PSI (I: 156; II: 208 and III: 279). 516 of them were hospitalized (I: 99; II: 157; III: 260). Inpatients were older (54.8±17.2, p<0.001), had more co-morbidity (chronic bronchitis, congestive heart failure, stroke and previous hospitalization; p<0.05) and worse chest x-ray and laboratory findings (p<0.05): white cells count 13625±5783 vs 11257±4806; blood neutrophil 79.5±11.3% vs 74.6±10.7%; albumin 3.24±0.7 vs 3.9±0.6; PaO₂ 64.9±13.1 vs 74.2±12.4; PaO₂/FiO₂ 301.18±63.7 vs 351.75±59. Variables included on multivariate analysis with logistical regression were dyspnea (OR 2.63; CI95% 1.75-4.10), previous chronic bronchitis (OR 2.55; CI95% 1.30-5.54), cough (OR 2.57, CI95% 1.28-4.38) and pneumococcal urine antigen early detection (OR 2.76, CI95% 1.27-5.98)

Conclusion: PSI is not the only determinant to assess hospitalization in CAP patients and severity appearance, previous chronic bronchitis and early pneumococcal diagnosis are the most relevant implicated factors.

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Prognostic factors of bacteremic pneumococcal pneumonia (BPP)

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Aim: To analyse the mortality prognostic factors of BPP.

Methods: 92 patients were retrospectively evaluated (1997-2005). We analysed demography, clinical signs, laboratory data, radiographic, microbiological features and outcome.

Results: 92 patients, 70 men, mean age 61.5 years (21-94). Predisposing conditions: 23 none, 18 more than two. Complications: 43 respiratory insufficiency (RI), 23 shock, 23 renal failure, 14 disseminated intravascular coagulation (DIC) and 9 pleural empyema. Radiography: multilobar in 37 and bilateral in 23. PSI: 44 in group I-III and 48 in group IV-V. Resistance to penicillin and erythromycin in 14, 6 to penicillin and 5 to erythromycin. 23 were admitted to ICU (5 in the group I-III); mechanical ventilation in 20. Mortality rate: 26%, (3 without predisposing factors and 3 with low risk of mortality). Prognostic factors (univariate analysis): > 2 underlying conditions (OR: 5.35 (1.57-18.59)), dyspnea (9.2 (1.9-62)), confusion (3.9 (1.2-13.3)), thoracic pain absence (4.8 (1.6-14.7)), respiratory rate>30 (5.9 (1.9-19.4)), leukopenia (7.2 (1.4-41)), multilobar (3.5 (1.19-10.3)), bilateral (5.2 (1.7-16.5)), PSI IV-V (10.6 (2.6-50)), penicillin resistance (7.5 (2.2-25.9)), shock (9.2 (2.8-31)), DIC (5.2 (1.65-16.55)), renal failure (5.2 (1.65-16.55)) and RI (11.2 (3.1-44.6)). Multivariate analysis: Penicillin resistance (9.2 (2.2-38.5)), RI (7.8 (1.7-36.8)), shock (7.6 (1.9-30.6)) and thoracic pain absence (6.9 (1.7-28.3)).

Conclusions: 1. BPP was severe (PSI IV-V) in 52% with underlying conditions absent in 25% and resistance to penicillin in 22%. 2. Mortality rate was 26% and independent prognostic factors were shock, respiratory insufficiency, thoracic pain absence and penicillin resistance.

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Genetic susceptibility to severe community-acquired pneumonia (CAP) in Buenos Aires

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Body: Genetic factors clearly influence susceptibility to and the outcome from pneumonia. Our aim was to explore the significance of the variant alleles encoding components of the inflammatory response and the microbial recognition system to understand their clinical relevance.

Methods: Prospective study. A cohort of adults with CAP, clinically diagnosed using predefined criteria (Luna CM et al. Chest 2000; 118:1344) was compared with healthy individuals. DNA was isolated from whole blood and polymorphisms typed using an ABI 7900 platform.

Results: Genotype and phenotype data were available from 139 cases (75.7 14.1 years old, 47.5% female); and 205 controls (40.1 11.7 years old, 26.5% female), all of Caucasian ancestry. Amongst the cases 43.9% were admitted to the ICU, 30.2% had septic shock and 30.9% required mechanical ventilation. Overall inpatient mortality was 41.7%.

Comparing cases with controls and adjusting by Bonferroni correction for multiple testing, Plasminogen activation inhibitor -1 4G/5G, Interleukin adhesion molecule (ICAM)-1 Lys469Glu and Von Willebrand Factor (VWF) Q852R were not different, while Factor VII G353A, ICAM -1 Lys56Met, Platelet glycoprotein IIIa, VWF Ala381Thr, VWF Thr789Ala, Protein C Receptor Ser219Gly and Protein C Receptor intronic C/T were statistically different at a p<0.001. All polymorphisms were in Hardy-Weinberg equilibrium and no statistical linkage disequilibrium was observed amongst the polymorphisms assayed.

Patients with CAP were characterized by the carriage of several polymorphisms with a significantly higher frequency than the healthy population from the same community in Buenos Aires.

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Prospective evaluation of clinical and microbiological parameters in patients with community-acquired pneumonia with and without comorbidity

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Introduction: Recommendations concerning management of community acquired pneumonia (CAP) differ for patients with and without comorbidity in the guidelines of the American Thoracic Society.

Aim of the study: To assess whether there are differences in prevalence of aetiology between patients with CAP with and without comorbid illness.

Material and methods: In a prospective study 262 patients with CAP were evaluated for clinical and microbiological parameters.

Results: See table

Clinical and microbiological outcome parameters in patients with community-acquired pneumonia with and without comorbid illness

Outcome parameters	No comorbidity, no = 139	Comorbidity, no = 123	p-score
Age, mean years (SD)	57.5 (20.2)	71.4 (12.6)	< 0.001
Pneumonia Severity Index			
Class I-III, no. of patients (%)	92 (66)	54 (44)	<0.001
Class IV-V, no. of patients (%)	47 (34)	69 (56)	<0.001
Mortality, no. of patients (%)	17 (12)	11 (9)	NS
Treatment failure, no. of patients (%)	23 (18)	9 (7)	0.02
Length of stay, mean days (SD)	11.9 (10.5)	14.7 (12.4)	0.05
Aetiology			
Known aetiology, no. of patients (%)	87 (63)	71 (58)	NS
Unknown aetiology, no. of patients (%)	52 (37)	52 (42)	NS
Streptococcus pneumoniae, no. of patients (%)	50 (36)	45 (37)	NS
Mycoplasma pneumoniae, no. of patients (%)	16 (12)	7 (6)	NS
Haemophilus influenzae, no. of patients (%)	6 (4)	12 (10)	NS
Legionella pneumophila, no. of patients (%)	8 (6)	5 (4)	NS

Conclusion: No difference in prevalence of pathogens was assessed between patients with CAP with and without comorbid illness. An identical initial empirical management approach should be recommended for both groups.

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Outcome of community acquired pneumonia in elderly patients

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Background: Community-acquired pneumonia (CAP) remains a major cause of mortality in western countries. There is much discrepancy in the literature regarding factors influencing the prognosis in the elderly.

Objectives: A prospective study was conducted to assess the prognostic factors of CAP patients with a special emphasis on comorbidities, residence status, gram-negative bacillar infections and initial antimicrobial treatment.

Setting: Data derived from a multicenter prospective study initiated by the German Competence network for (CAPNet; www.capnetz.de). The network has been described in detail elsewhere.

Patients: 2647 patients (1298 < 65 years, 1349 > 65 years) with CAP were evaluated. 72.3% were hospitalised, 27.7% treated in the community.

Methods: Clinical history, residence status and course of disease were documented. Microbiologic investigations included cultures and PCR from respiratory samples (only high quality sputum) and blood cultures. Factors significantly increased in elderly patients were included in multivariate analysis.

Results: Overall the 30-day mortality was 6.3%. Elderly patients had a significantly higher mortality rate (< 65 years 2.2% vs. > 65 years 10.3%, p < 0.001). By multivariate analysis 30-day mortality was associated independently with the CURB score, some comorbidities, residence status and failure of initial treatment whereas gram-negative aetiology and interestingly chronic pulmonary disease were no independent risk factors in this age group.

Conclusion: The prognostic factors found in this study may help to identify those subjects at higher risk who should require special observation during the course of disease.

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Statin therapy and reduced risk of pneumonia in elderly patients with diabetesEwoudt M.W. van de Garde¹, Eelko Hak², Patrick C. Souverein¹, Arno W. Hoes², Jules M.M. van den Bosch³, Hubert G.M. Leufkens¹.¹Pharmacoepidemiology and Pharmacotherapy, Utrecht Institute for Pharmaceutical Sciences, Utrecht, The Netherlands; ²Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands; ³Pulmonary Diseases, St. Antonius Hospital, Nieuwegein, The Netherlands**Background:** Recent studies showed that statin therapy is associated with better outcome in patients hospitalized for pneumonia. Elderly patients with diabetes are at increased risk for lower respiratory tract infections and their complications.**Objective:** To assess whether use of statins is associated with decreased risk of pneumonia in elderly diabetic patients managed in primary care.**Methods:** We included all patients with a diagnosis of diabetes (type 1 and 2) registered in the U.K. General Practice Research Database (GPRD) between 1/6/1987 and 21/1/2001. A case-control study was conducted with cases defined as patients with a first diagnosis of community-acquired pneumonia. For each case, up to 4 controls were matched by age, gender, practice, and index date. Patients were classified as current statin user when the index date was between start and end date of therapy.**Results:** The study population comprised 4,719 cases and 15,322 controls. Current use of statins was 1.1% for cases and 2.1% for controls (crude OR 0.51, 95% CI 0.37-0.68). After adjusting for cardiovascular diseases, respiratory diseases, diabetes type, use of gastric acid suppressing drugs, flu vaccination, and glucocorticoid use as potential confounders, statin therapy was associated with a 53% reduction in pneumonia risk (adjusted OR 0.47, 95% CI 0.34-0.65). The association was consistent among different co-morbidity subgroups (cardiovascular disease, and respiratory diseases) and independent of age or use of other prescription drugs.**Conclusions:** Use of statins is associated with a considerable reduction in pneumonia risk in diabetic patients and may apart from lipid-lowering properties be useful in prevention of respiratory infections.

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Are corticosteroids useful in community-acquired pneumonia?Póvilas Dambrava¹, Georgina Peñarroja², Ivet Aldabo¹, Esteban Cano¹, Oriol Sibila¹, Maria A. Marcos³, Marta Camps³, Miquel Sánchez⁴,Carlos Agusti¹, Jose Mensa², Antoni Torres¹. ¹Instituto Clínico del Tórax, Hospital Clinic, Barcelona, Spain; ²Instituto Clínico de Medicina y Dermatología, Hospital Clinic, Barcelona, Spain; ³Instituto Clínico de Diagnóstico Biomedico, Hospital Clinic, Barcelona, Spain; ⁴Urgencias, Hospital Clinic, Barcelona, Spain**Study objective:** There is controversy about corticosteroid use in the treatment of community-acquired pneumonia (CAP).

We evaluated the effect of corticosteroid use on mortality and length of stay.

Design: Prospective, observational study.**Setting:** Tertiary-care teaching hospital.**Patients:** Patients with CAP who were consecutively admitted to the emergency room of our hospital and treated empirically since January 1st, 2005.**Interventions:** Patients were stratified according to FINE scale, ATS guidelines recommendations, and corticosteroid use.**Results:** We analyzed 307 patients, 193 male (62.9%), and 114 female (37.1%), 266 required admission to a hospital ward.

Corticosteroids were prescribed in 128 of 266 patients (47.9%).

There was no significant difference in mortality (8.6% (11/128) vs. 4.3% (6/139), respectively) (p=0.210) between patients receiving and non-receiving corticosteroids.

There was a significant difference in duration of hospitalization (14 vs. 7 days, respectively) (p = 0.002) between patients receiving and non-receiving corticosteroids.

When we made a multivariate analysis including FINE score, and ATS guidelines compliance among other factors there was no significance in mortality and length of stay in respect to corticosteroid use.

Conclusions: Overall corticosteroid use in patients with CAP admitted to a hospital ward was high. There was no significant difference in mortality or length of stay in patients who received corticosteroids.

A prospective randomized study is required.