Determinants of community-acquired pneumonia in children and young adults in primary care

Authors: Teepe J et al.
URL: http://erj.ersjournals.com/cgi/content/full/35/5/1113

Comment: Most studies on the determinants of community-acquired pneumonia (CAP) in primary care have focused on adults and the elderly. In this case–control study conducted in four Dutch healthcare centres between 1998 and 2008, the determinants of CAP among 107 children (≤ 15 years old) and 156 young adults (16-40 years old) were identified. This is one of the few studies to have shown that 1) increasing age was an independent determinant of CAP in young adults; 2) having ≥ 3 young children at home increased the risk of developing CAP in young adults; and 3) the number of previous upper respiratory tract infections was independently associated with CAP in both children and young adults.
Lower incidence of acute respiratory distress syndrome in community-acquired pneumonia patients aged 85 years or older

Authors: Toba A et al.
URL: http://www3.interscience.wiley.com/cgi-bin/fulltext/123237064/HTMLSTART

Comment: In this retrospective study of 221 consecutive Japanese patients aged ≥ 65 years who were admitted due to community-acquired pneumonia (CAP), the investigators examined the clinical and laboratory characteristics associated with the presence of adult respiratory distress syndrome (ARDS). They showed that ARDS developed less frequently in patients aged ≥ 85 years and in those with oropharyngeal aspiration, and also that the predictors for ARDS did not correlate with determinants of severity of CAP. This study is one of very few that have been published on elderly patients with pneumonia.

Newer fluoroquinolones for treating respiratory infection: do they mask tuberculosis?

Authors: Chang KC et al.
URL: http://erj.ersjournals.com/cgi/content/full/35/3/606

Comment: In several guidelines, respiratory fluoroquinolones have been positioned as first choice empirical antibiotics for treating community-acquired pneumonia (CAP). However these agents also have potent anti-tuberculosis properties, and in regions where tuberculosis (TB) is still endemic, the use of these fluoroquinolones may mask active tuberculosis. In a randomized, open-label controlled trial of adult CAP or infective exacerbation of bronchiectasis that was conducted in Hong Kong government chest clinics, 427 patients were assigned to either amoxicillin clavulanate (AC) or moxifloxacin, and followed up over one year for active pulmonary TB. Proportionately more patients treated with AC later developed active TB (4.8% vs. 1.4%) and post-hoc analysis suggested a significant trend for difference between treatment with AC or moxifloxacin for 5 or 10 days. The adjusted odd ratio for TB was 0.3 (95% CI 0.1-0.9) when moxifloxacin was administered for 10 days. This finding highlights the potential for masking of TB by the newer fluoroquinolones, and suggests that caution is required when prescrib-

Efficacy of corticosteroids in community-acquired pneumonia - a randomized double-blinded clinical trial

Authors: Snijders D et al.
Reference: Am J Respir Crit Care Med 2010; 181: 975-82.
URL: http://ajrccm.atsjournals.org/cgi/content/full/181/9/975

Comment: The clinical benefit of adjuvant corticosteroids in certain settings of pneumonia continues to be debated. In this randomized controlled study from the Netherlands, 213 adult patients, who were hospitalized for community-acquired pneumonia, received either prednisolone 40 mg once daily or placebo for 7 days. The primary outcome of clinical cure at day 7 did not show any significant difference. Although the prednisolone group showed faster defervescence and reduction of C-reactive protein levels, there appeared to be more late treatment failures in non-severe patients. The authors concluded that such adjuvant therapy to antibiotics, at the described dose and duration, generally does not provide any clinical benefit.
Pneumococcal pneumonia presenting with septic shock: host- and pathogen-related factors and outcomes

Authors: Garcia-Vidal C et al.
URL: http://thorax.bmj.com/content/65/1/77.long

Comment: This was a prospective cohort study from Spain, of 1041 non-immunosuppressed patients with proven pneumococcal pneumonia, who required hospital treatment. The investigators looked at a wide spectrum of host- and pathogen-related factors, including genotypes, and the associated outcomes. After adjustment, only three independent risk factors for septic shock on admission were identified: current cigarette smoking [OR, 2.11; 95% CI, 1.02-4.34], chronic corticosteroid treatment [4.45; 1.75-11.32] and serotype 3 [2.24; 1.12-4.475]. These findings reiterate the detrimental effects of cigarette smoking on lung defences and the need for judicious prescribing of longer term corticosteroid treatment.

N-Acetylcysteine inhibits RhoA and promotes apoptotic cell clearance during intense lung inflammation

Authors: Moon C et al.
URL: http://ajrccm.atsjournals.org/cgi/content/full/181/4/374

Comment: The inflammatory cascade in acute pneumonia may persist and progress despite apparent eradication of bacterial infection. In this study from Korea, the investigators used a mouse model to demonstrate in vivo and ex vivo evidence that N-acetylcysteine (NAC) expedited the resolution of LPS-induced pulmonary inflammation, through inhibition of RhoA activity and the enhancement of apoptotic cell clearance. These findings in an animal model lend support to the possible use of NAC in patients with severe pneumonia, in whom there are some anecdotal reports of successful treatment.

Nursing home-acquired pneumonia: a 10 year single-centre experience

Authors: Polverino E et al.
URL: http://thorax.bmj.com/content/65/4/354.long

Comment: There has been some debate whether the new category of healthcare-associated pneumonia is necessary. In this study of 150 consecutive cases of nursing home-acquired pneumonia from a single centre in Spain over a 10-year period, the investigators showed that while the patients' clinical characteristics (e.g. co-morbidities) were comparable with those of patients with hospital-acquired pneumonia, their microbiological and mortality data were more similar to those of patients with community-acquired pneumonia (CAP). The authors concluded that empirical antibiotic coverage for nursing home-acquired pneumonia can be the same as that for CAP, although risk factors for multidrug-resistant infections should still be individually evaluated.
Prospective, randomised study to compare empirical treatment versus targeted treatment on the basis of the urine antigen results in hospitalised patients with community-acquired pneumonia

Authors: Falguera M et al.
URL: http://thorax.bmj.com/content/65/2/101.full
and accompanying editorial on this original article by
URL: http://thorax.bmj.com/content/65/2/93.full

Comment: This interesting study from Spain randomized 177 patients, who were hospitalized with community-acquired pneumonia, to receive either empirical or targeted antibiotic treatment based on urinary antigen tests for *Streptococcus pneumoniae* and *Legionella pneumophila*. The investigators showed that targeted treatment was associated with a trend towards higher overall cost, reduction in adverse events and lower exposure to broad-spectrum antimicrobials. In 25 patients in the targeted group, who were started on oral antibiotics, there was a significantly higher risk of clinical relapse compared to the others. The authors concluded that the routine use of urine antigen detection tests did not carry substantial clinical or economic benefits, and cautioned about the risk of relapse due to inappropriate narrowing of antibiotic coverage.

Pro-atrial natriuretic peptide and pro-vasopressin for predicting short-term and long-term survival in community-acquired pneumonia: results from the German Competence Network CAPNETZ

Authors: Kruger S et al.
URL: http://thorax.bmj.com/content/65/3/208.full

Comment: This large German study, which comprised 1740 patients hospitalized for community-acquired pneumonia (CAP), assessed the predictive value of serum biomarkers and Confusion, Respiratory rate, Blood pressure, 65 years of age and older (CRB-65) score for short-term (within 28 days) and long-term (within 180 days) survival. Receiver operating characteristic (ROC) analysis showed that mid-regional pro-atrial natriuretic peptide, and C-terminal pro-atrial vasopressin were superior to CRB-65 score, procalcitonin, C-reactive protein and leukocyte count for predicting both short- and long-term survival. These two biomarkers remained the strongest predictors of survival, even after adjusting for co-morbidity and pneumonia severity by regression analysis. The findings raise the exciting prospect that
Coagulation and inflammation biomarkers may help predict the severity of community-acquired pneumonia

Authors: Agapakis DI et al.
URL: http://www3.interscience.wiley.com/cgi-bin/fulltext/123454905/HTMLSTART

Comment: In a prospective observational study of 77 adult patients admitted to hospital with community-acquired pneumonia, these investigators from Greece showed that serum levels of antithrombin III and D-dimers, but not protein C, were significantly lower in patients with more severe pneumonia, as defined by Confusion, Urea nitrogen, Respiratory rate, Blood pressure, 65 years of age and older (CURB-65) score. They suggested that at certain cut-off points, the sensitivities and specificities of these tests may exceed 80% and 75%, respectively, and that these biomarkers could perhaps be used to help in deciding on the need for hospital admission.

C-reactive protein and procalcitonin as predictors of survival and septic shock in ventilator-associated pneumonia

Authors: Hillas G et al.
URL: http://erj.ersjournals.com/cgi/content/full/35/4/805

Comment: In this interesting prospective cohort study from Greece, the investigators evaluated 45 patients with ventilator-associated pneumonia, with regard to the performance of procalcitonin and C-reactive protein threshold values and kinetics, as predictors of survival and development of septic shock. Contrary to what might be expected, neither the threshold values nor the kinetics of these two biomarkers were predictors for the study outcomes. These results once more emphasise the need for clinical judgment and a holistic assessment of patients with severe pneumonia.