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REVIEW

Community-acquired pneumonia☆

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Prognosis

Abstract This article not only reviews the essential aspects of community-acquired pneumonia for daily clinical practice, but also highlights the controversial issues and provides the newest available information. Community-acquired pneumonia is considered in a broad sense, without excluding certain variants that, in recent years, a number of authors have managed to delineate, such as healthcare-associated pneumonia. The latter form is nothing more than the same disease that affects more frail patients, with a greater number of risk factors, both sharing an overall common approach.

PALABRAS CLAVE
Neumonía adquirida en la comunidad;
Factores de riesgo;
Epidemiología;
Manifestaciones clínicas;
Diagnóstico;
Biomarcadores;
Pronóstico

Neumonía adquirida en la comunidad

Resumen El presente artículo no revisa únicamente aquellos aspectos de la neumonía adquirida en la comunidad fundamentales para la práctica clínica diaria, sino que incide en los temas polémicos, y aporta la información más novedosa disponible. Se considera la neumonía adquirida en la comunidad en un sentido amplio, sin excluir ciertas variantes que, durante los últimos años, algunos autores han llegado a deslindar, como la neumonía asociada a cuidados sanitarios. Esta última no es más que la misma enfermedad que incide en pacientes más frágiles, con un mayor número de factores de riesgo, compartiendo ambas un planteamiento global común.

Background

According to recent studies, the incidence of community-acquired pneumonia (CAP) in adults is 3–20 cases per 1000 inhabitants/year, with an upward trend.[1,2] There is an indisputable relationship between the incidence of CAP and advanced age, tobacco or alcohol consumption,

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low weight (body mass index <16) and, probably, morbid obesity and close contact with children.[1–4] Chronic obstructive pulmonary disease (COPD), cerebrovascular disorders, advanced human immunodeficiency virus (HIV) infection and, probably, cardiovascular diseases increase the risk 2 to 4-fold.[1,5]

We can cautiously include the fact that a number of authors have found relationships between CAP and a work environment subject to dust and abrupt temperature changes and between CAP and poor dental hygiene, relationships that seem reasonable.[6] The seasonal relationship between Legionnaires' disease and warm periods is perfectly documented; however, a recent study also established a relationship with rainy climate conditions, while winter causes an increase in the incidence of pneumococcal pneumonia.[7]

An intense debate has arisen regarding certain drugs and the increased or decreased incidence of CAP. The controversy is not resolved, but perhaps if we put aside the possible pernicious role of inhaled corticosteroids and the consumption of benzodiazepines, the evidence does not side with the increased risk that proton pump inhibitors can play or with the reduction in risk attributable to angiotensin II inhibitors and statins.[5,8–13]

Aspiration pneumonia deserves a separate chapter. As its name suggests, this condition requires the presence of a number of predisposing factors that have been well established for decades, including alcoholism, neurological disease, gastrointestinal disease that impedes upper intestinal transit and conditions that cause a reduced level of consciousness.[14]

The hopes placed in the pneumococcal polysaccharide vaccination, which has been available for decades, have been largely frustrated by numerous studies that, at best, attribute to it a slight benefit in terms of severity indicator parameters but not in terms of incidence and mortality.[15] The excellent results published after the massive vaccination of the pediatric population with the conjugate vaccination have renewed hopes for the adult population. Preliminary studies have suggested that the pneumococcal vaccine achieves a significant reduction in pneumococcal infections caused by the vaccine serotypes but has less impact on the overall incidence of CAP.[16] Similarly, the benefits of the influenza vaccination are undebatable, although they appear to be limited.[17]

Approximately 30–40% of patients with CAP require hospitalization, and 2–10% require hospitalization in an intensive care unit (ICU). The overall mortality rate during hospitalization is 2.7%, a figure that increases significantly if we include the immediate aftermath (8% at 90 days, 21% at 12 months and 36% at 5 years).[1,2,18] All of this results in very high overall healthcare expenditures, particularly in terms of hospitalization expenses, which represent more than 90% of the total cost.

Clinical diagnosis

The medical history is the key element in the diagnosis of the disease. The presence of 2 or more symptoms or clinical signs (fever, cough, expectoration, dyspnea, pleuritic pain and characteristic physical signs) is considered essential in any study that assesses patients with CAP. Any clinician with certain experience knows that a simple reduction in the level of consciousness in an elderly individual could be due to pneumonia. The same is true when faced with a patient with fever with no respiratory manifestations.[19] However, the lack of specific clinical data forces us to rule out other diagnostic options. The presence of pleuritic pain or very obvious symptomatology can be of considerable use.[1,19,20]

Chest radiography confirms the clinical diagnosis, with findings that are easy to recognize in young patients with no previous respiratory diseases and when the X-rays are performed in good conditions.[19] Nevertheless, we are not always faced with such circumstances. Small condensations, which are difficult to observe in a plain X-ray, are obvious if we conduct chest computed tomography. Chest ultrasonography is an alternative diagnostic technique in the hands of experts and it enables us to detect the presence of pleural effusion with increased accuracy.[21]

The differentiation between patients with typical or atypical clinical conditions (based on the presence or absence, respectively, of 3 or more of the following manifestations: sudden onset, chills, pleuritic pain, purulent expectoration, marked symptomatology and leukocytosis) has no absolute predictive usefulness. However, the differentiation correlates with a greater or lesser probability of conventional or atypical bacterial agents and is still of practical usefulness, particularly for patients with nonsevere CAP.[22,23]

Apart from these general clinical variables, various pathogens have been correlated with specific clinical and epidemiological findings (Table 1). Recent studies have shown that *Streptococcus pneumoniae* (*S. pneumoniae*) is still the most common etiological agent, followed by conventional bacteria and, particularly among individuals with underlying diseases, *Haemophilus influenzae* (*H. influenzae*), *Staphylococcus aureus* (*S. aureus*), *Moraxella catarrhalis*, *Pseudomonas aeruginosa* (*P. aeruginosa*) and other Gram-negative bacilli.[1,19] *P. aeruginosa* and Gram-negative enteric bacilli frequently appear in patients with severe CAP, immunosuppression, advanced COPD and bronchiectasis and in those treated systemically with corticosteroids, although cases of pneumonia by *P. aeruginosa* and *Acinetobacter spp*. have been documented in previously healthy individuals.[24,25]

Among the atypical agents, *Mycoplasma pneumoniae* (*M. pneumoniae*) constitutes the prototype microorganism responsible for clinical conditions with few symptoms, affecting young individuals and causing a subacute clinical condition with low severity. However, severe or fulminant episodes have been reported.[1,26] Its epidemic character, at times within the same family group, is well known but is often not taken into account.[27] *Chlamydophila pneumoniae*, *Chlamydophila psittaci* and *Coxiella burnetii* complete the spectrum of these agents, with greater of lesser relative importance according to epidemiological studies based on the diagnostic tests performed, the presence of disease outbreaks and the geographical regions considered.[19,28]

Legionella pneumophila deserves special mention. This agent is associated with severe clinical conditions that frequently require hospitalization in ICUs and can be associated with particular clinical manifestations. A number of centers have fairly accurate predictive scales for this etiology.[29]