I read with interest the article by Dr Bafadhel et al in a recent issue of CHEST (June 2011) on using procalcitonin levels to diagnose community-acquired pneumonia (CAP) in adults with acute exacerbations of chronic bronchitis (AECB) or asthma. The diagnostic significance of procalcitonin depends on the clinical context. However, the use of procalcitonin levels in diagnosing CAP in adults with acute asthma or AECB seems to be unnecessary.

Patients with asthma exacerbations who are ill enough to be seen in the ED have well-known clinical features. Patients presenting with asthma are afibrile with a chest radiograph showing hyperinflation but no pulmonary infiltrates. Patients with AECB presenting to the ED are afibrile and have changes in their sputum (ie, volume, color, and tenacity). Unlike those with asthma, patients with AECB are prone to bacterial CAP. However, the chest radiograph readily differentiates AECB from CAP by the presence or absence of focal/segmental infiltrates. In AECB, chest radiographic findings are limited to peribronchial cuffing, but the radiographs are usually unremarkable. The diagnosis of bacterial CAP is based on the presence of fever, pulmonary symptoms, and a focal/segmental infiltrate on chest radiograph. Viral CAPs on chest radiograph are clear or may show an accentuation of lung markings or bilateral patchy interstitial infiltrates. Therefore, diagnosis of bacterial CAP in adults with acute asthma or AECB rests primarily on the presence of fever and chest radiograph infiltrates compatible with bacterial CAP.

Patients with AECB are predisposed to develop Streptococcus pneumoniae, Haemophilus influenzae, and, particularly, Moraxella catarrhalis CAP. In contrast to AECB, bacterial CAP is a rare complication of an acute asthma exacerbation. Respiratory viruses are frequent triggers of acute asthma whereas Mycoplasma pneumoniae and Chlamydia pneumoniae may trigger, exacerbate, or cause asthma. Procalcitonin levels are un Elevated or mildly or moderately elevated with viral and atypical CAPs. With bacterial CAPs, procalcitonin levels are more highly elevated with bacteremic and lobar CAP.

In an era dominated by technologically driven diagnoses, we should not forget that the traditional clinical approach to diagnosing CAP still rests on history, physical examination, and chest radiographic findings. This time-tested approach has not lost its clinical usefulness or accuracy. It has been said, and I agree, “All biomarkers have their weaknesses and strengths. None should be used alone; and none is anything more than an aid in the exercise of clinical judgement.” Procalcitonin levels add nothing except additional cost and possibly diagnostic confusion to the relatively straightforward clinical diagnosis of CAP and acute asthma and AECB.

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Procalcitonin vs Clinical and Chest Film Findings to Diagnose Community-Acquired Pneumonia in Patients With Acute Asthma or Acute Exacerbations of Chronic Bronchitis

To the Editor:

References


REFERENCES


Response

To the Editor:

We thank Dr Cunha for his interest in our study on the potential role of procalcitonin and C-reactive protein in the management of exacerbations of airways disease.1 We agree with Dr Cunha that biomarkers should complement rather than replace good clinical practice and that results from biomarkers should be considered in light of the pretest probability. Indeed, in the absence of good clinical judgment, biomarkers may impair rather than facilitate decision making. Biomarkers are particularly valuable in helping to stratify risk, where the management strategy is uncertain or controversial, and to direct therapy. For example, in the management of chronic heart failure, directing therapy based on peripheral blood levels of brain natriuretic hormone reduces all-cause mortality.2 Likewise in asthma, there is increasing evidence that sputum eosinophilia helps to identify patients who will respond to corticosteroids and targeted anti-IL-5 therapy.3

In our study of the patients admitted to the hospital with pneumonia or exacerbations of asthma or COPD,4 we found that in addition to those patients with pneumonia, a large proportion of patients with asthma or COPD received antibiotics. Current guidelines do not advocate antibiotics for asthma exacerbations, although there is evidence to suggest that macrolide antibiotics hasten the rate of recovery.4 Most hospitalized patients with exacerbations of COPD fulfill current clinical guidelines to receive antibiotic therapy, but the benefit is relatively small and likely to be limited to a subgroup within those with more severe exacerbations. This is demonstrated in studies that have successfully reduced antibiotic usage in an acute setting by using procalcitonin to direct clinical decision making without increased adverse events in those patients not treated with antibiotics.5 The application of biomarkers such as procalcitonin or C-reactive protein add value beyond standard clinical care, and in our study,6 the modified early warning score, which is a composite of clinical assessment, was a poor discriminator between patients with pneumonia and an exacerbation of asthma. We, therefore, wholeheartedly agree with Dr Cunha that we must not lose the “art” of medicine, but this needs to be informed by the “science” of medicine.

Conventional Ventilation vs Protective Strategies for Thoracic Surgery

The Results May Be Too Good to Be True

To the Editor:

In a recent issue of CHEST (March 2011), Yang et al1 demonstrated a surprisingly clear benefit of protective-ventilation strategy compared with conventional ventilation (CV) for thoracic surgical procedures in a small sample of patients. With 50 patients in each study arm, they demonstrated a 22% rate of pulmonary dysfunction in the conventional group vs 4% in the protective-ventilation cohort. Yet, serious problems with randomization and study design cast some doubts over the suggestive results. In the CV group, the majority of the procedures (≥50%) were performed by one surgeon. In addition, in the same group, < 40% of the patients (vs 60% in the protective ventilation group) had an epidural for postoperative pain management, making the two groups almost incomparable.2 Furthermore, in 30% of the patients in the CV group, a change in ventilation mode was necessary for...