International Journal of COPD

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LETTER

Community-acquired pneumonia and survival of critically ill acute exacerbation of COPD patients in respiratory intensive care units

This article was published in the following Dove Press journal:
International Journal of COPD
2 March 2017
Number of times this article has been viewed

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Dear editor

Community acquired pneumonia (CAP) leads to more than 1 million hospital admissions per year according to the severity of the disease or exacerbation of underlying comorbid conditions in the USA.[1,2] COPD is the most frequent comorbidity in patients with pneumonia, which induces acute exacerbation of COPD and respiratory failure. In a recent study, pneumonia was the second cause (19.7%) for intensive care unit (ICU) admissions among COPD patients,[3] and a long-term (12 months) follow-up showed that the mortality of the COPD patients who were admitted to ICU due to pneumonia was higher than patients admitted for other reasons.[3]

We read with great pleasure the recent paper by Lu et al[4] entitled "Community-acquired pneumonia and survival of critically ill acute exacerbation of COPD patients in respiratory intensive care units" published in *International Journal of COPD*. This study was a retrospective observational design and was conducted in a respiratory intensive care unit for a 3-year period in China. They aimed to investigate the effect of CAP on hospital mortality in critically ill patients with acute exacerbation of COPD. A total of 80 patients were evaluated, of whom 38 had CAP, and they concluded that COPD patients with CAP had higher inhospital mortality than patients without CAP. This study is valuable to emphasize the mortality rates in patients with COPD and SCAP. However, we believe that there are some issues worthy for further comment.

First, there are no data about the criterion(s) for ICU admission of severe CAP (SCAP). The minor criteria of Infectious Diseases Society of America/American Thoracic Society (IDSA/ATS) 2007 were tested in clinical practice to identify SCAP cases for early aggressive resuscitation and prevent ICU admission delay.[5] Different combinations out of 9 minor criteria of 2007 IDSA/ATS are associated with diverse mortality.[6] Li et al[6] investigated 385 SCAP patients in a prospective 2-center study and concluded that patients with PaO_2/FiO_2 level $\leq$250 mmHg and with confusion and uremia were predicted with more severity and higher mortality when compared with others. Chalmers et al[7] found that each minor criterion was predictive of mortality, but hypotension, multilobar radiographic shadowing and hypothermia had the strongest association with mortality.

Second, one of the most important issues about CAP is the fact that there is very close correlation between hospital mortality, time to initiate appropriate empirical antibiotic treatment and time to respiratory intensive care unit admission. Mortality increases according to ICU admission delays.[5] In the present study it is not clarified

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http://dx.doi.org/10.2147/COPD.S124812

whether the patients were admitted from the emergency department or general ward. COPD patients were predisposed to pneumonia with several microorganisms such as *Pseudomonas aeruginosa* and *Legionella pneumophila*. Because COPD patients use corticosteroids and antibiotics, have malnutrition and frequent hospital admissions. It is undetermined in the study whether empiric antibiotic treatment covers these probable microorganisms.

We believe that a resuscitation bundle should be performed, including appropriate empiric antibiotic treatment, fluid challenge, organ failure and tissue hipoperfusion assessments, immediately after the COPD patients are encountered with SCAP in order to reduce mortality.

Disclosure

The authors report no conflicts of interest in this communication.

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