



The threat in chronic lung diseases: acute exacerbations

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Acute exacerbations are the most acute threat in chronic lung diseases <http://ow.ly/il2130eDMK1>

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Globally, hundreds of millions of people are burdened with chronic respiratory diseases, and pulmonary disorders rank amongst the most frequent causes of death [1]. Acute worsening of chronic lung disease is increasingly recognised as one of the main causes of disease progression, loss of health-related quality of life, and disease-associated mortality. While substantial progress has been made in the long-term management of most chronic lung diseases, our knowledge regarding causes, early identification, essential diagnostic procedures including biomarkers, and especially about disease-modifying treatments of acute worsening, is still in its infancy. Also, the definitions of acute worsening (so-called acute exacerbations) of different chronic lung conditions remain somewhat vague. For example, in chronic obstructive pulmonary disease (COPD), the current update of the Global Strategy for COPD [2] defines an exacerbation of COPD as an acute worsening of respiratory symptoms that results in additional therapy, a definition that nevertheless is good enough for medical decisions or as an end-point in trials. For idiopathic pulmonary fibrosis (IPF), an acute exacerbation is defined as an acute, clinically significant, respiratory deterioration characterised by evidence of new widespread alveolar abnormality [3].

Such acute worsenings of different kinds of chronic lung diseases share common characteristics. 1) They describe a phenomenon of sudden worsening of the underlying chronic lung disease that can range from self-limited episodes to significant respiratory failure requiring mechanical ventilation. 2) They cause significant morbidity and mortality. 3) Although the acute exacerbation often seems like an intrinsic (idiopathic) process, it may be triggered, especially by infection. 4) A number of differential diagnoses have to be excluded, especially the typical suspects: pulmonary embolism, heart failure/myocardial infarction, drug toxicity, infectious pneumonia (including those due to immunosuppressive therapy), renal and other organ failures, which are common comorbidities. 5) They may frequently be overlooked.

Because of these similarities, there is much to be learned from a comparative approach of acute exacerbations in the setting of the various chronic lung diseases. Asthma and COPD, for example, are conditions for which acute exacerbations have long been identified, providing clues to other areas as to

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how to better diagnose and treat these complications. Although evidence regarding treatment options of acute exacerbation of airways diseases has been accumulating over the years [4], nothing is known about how to treat acute exacerbations of IPF, with the current standard of high-dose steroid regimen being based only on expert opinion, with no controlled trial so far evaluating the safety and efficacy of this approach. It is likely that better identification and consensus definition of acute exacerbations of IPF may set the scene for future clinical trials and progress regarding treatment of these events, as witnessed for COPD and asthma exacerbations.

In order to improve our expertise and facilitate learning from other domains, the *European Respiratory Review* is launching a series of invited articles on acute deteriorations of specific lung diseases, written by leaders in their field, highlighting the current knowledge and trying to point out the needs for the future. In the current issue, KONDOKH *et al.* [5] review recent lessons learned in the management of acute exacerbation of IPF. In another article planned for this series, aspects of acute exacerbation in asthma will be highlighted. A further article will discuss the current knowledge of acute exacerbations of COPD, and another will present the characteristics of acute decompensation of patients with pulmonary hypertension. Finally, the moving field of bronchiectasis and the meaning of acute deteriorations of this condition will be reviewed.

We hope that you will enjoy reading this series of articles as much as we have, and that this series will facilitate further research and progress on these topics. One important goal for the future is to increase our understanding of the pathophysiology of acute worsening of chronic lung diseases. By understanding the similarities of acute worsening in different chronic lung conditions, including COPD, asthma, IPF, pulmonary hypertension and others, we may be able to establish common preventive strategies of these severe complications, for example through vaccination strategies if the role of viral infections is better understood. Improvement of our understanding of the specific aspects of different forms of acute deteriorations is needed to develop new strategies in diagnosing and treating these complications.

As recently illustrated for acute exacerbations of IPF [6], shifts in paradigm sometimes need a change in terminology, and it may be that a uniform terminology would be useful. Perhaps one terminology to be discussed would be that of “acute on chronic lung disease”, comparable to renal and liver disease.

How can we do better in acute on chronic lung disease? A common answer in this series is: better prevention, early detection, and early and effective treatment. A demanding task for the future.

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