EDITOR'S NOTE

New insights into chronic respiratory disorders

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Milo Puhan, an active epidemiologist involved in many areas of chronic obstructive pulmonary disease (COPD) research, from the *Epidemiology, Biostatistics and Prevention Institute* at the *University of Zürich*, and *Gerben ter Riet*, from the *University of Amsterdam*, two prestigious European centres, are the authors of an enthralling review on **prediction models of COPD** in this third issue of 2018 of *Barcelona Respiratory Network Reviews*. Predictive models of COPD and their development and validation including novel approaches, such as multiple score comparison meta-analysis, constitute the thrust of this original contribution. Likewise, they also report research needs to develop accurate and valid models to predict COPD exacerbations supporting their risk-stratified prevention. By providing a probability of the outcome that occurs at a given time frame, these authors suggest that prediction models can thoroughly inform both patients and caregivers about the prognosis of the disease. Being the diagnosis of COPD established, the central question for the patient may be in what respects this diagnosis can affect and influence his or her future in life, a key issue in the usual management of patients.

The next review deals with a very timely relevant topic, *i.e.* **acute exacerbations in bronchiectasis**, presented by a potent international research team with proven experience in the bronchiectasis world, composed by *M Aurora Mendes*, *Amelia Shoemark* and *James D Chalmers*, from the *Scottish Centre for Respiratory Research* at the *University of Dundee*, the latter author being team leader of the group and current Deputy Editor of the *European Respiratory Journal*. The authors highlight that the natural course of bronchiectasis is frequently punctuated by acute episodes of exacerbations, mostly associated with a new and/or persistent bacterial infection that causes increased inflammation and further lung damage. Needless to say that these episodes have a considerable and significant impact on patients' symptomatology and outcomes, including lung function and mortality, health quality of life, and healthcare utilization resources costs at both short- and long-term. After an overview of the several definitions given to an exacerbation

of bronquiectasis, the authors draw the attention to frequency of exacerbations, time to first exacerbation frequency and time to first exacerbation as the most widely used outcomes in current randomised controlled trials. The complexity of its treatment is also addressed, wherein inhaled antibiotics are playing a key role. According to the authors' experience, it is anticipated that frequency of bronchiectasis exacerbations is likely to be the most clinically relevant variable to become the outcome most often used for clinical management.

David Gozal, a worldwide expert and fine scientist in the field of obstructive sleep apnoea (OSA), Past President of the *American Thoracic Society* (ATS), from the *Pritzker School of Medicine, Biological Sciences Division* at the *University of Chicago,* is the inspiring author of another article on the **analysis of early antecedents of OSA**. After a brief discussion on the current understanding of epigenetics in OSA, he reviews the evidence on how this disease can impose a variety of epigenetic modifications which can then promote risk of long-term morbidities or attenuate their reversibility, altogether depending on the various stages of life. He also highlights that individuals suffering from OSA at any age are exposed to unique environmental conditions and evolve in their very personal lifestyle. According to his views, the latter two situations can also impose major changes to the 'cogwheel of OSA-induced morbidity', quoting his own words, together with each genetic background and epigenetic modifications.

Donald Tashkin, from the *Division of Pulmonary and Critical Care Medicine, David Geffen School of Medicine, at University of California Los Angeles* (UCLA), one of the giants of contemporary respiratory medicine asks how much a **bronchodilator response matters in COPD**, a relevant clinical question with considerable implications for the management and treatment of the disease. This review stunningly disentangles several key features related to the potential role of a positive bronchodilator response in COPD. These include the impact that can or may have the presence of a positive bronchodilator response on the diagnosis of COPD; on the differentiation from asthma or the identification of asthma and COPD overlap; on the assessment of COPD severity, through population-based and interventional studies; on the prediction of the long-term effectiveness of treatment based on an initial assessment of such a test; and, last but not least, on the classification of the disease into a distinct phenotype. Although the author concludes after unravelling *pros* and *cons* of such approach that a positive bronchodilator response may not matter much in COPD, he honestly admits that some practical utility in routinely assessing the response to a giving bronchodilator may indeed matter as well.

This poker of aces is completed by a fifth article on **current and future challenges in respiratory medicine** debated at a *BRN Foundation Retreat* held in Barcelona in the middles of 2017. This report is critically summarised by three local experts with a solid renown, *Jordi Dorca*, *Alvar Agustí* and *Eduard Monsó*, from three of the major university-affiliated hospitals of the metropolitan area of Barcelona and is presented on behalf of a large list of participants listed at the end of the article. The main thrust of the debate concentrates on the fact that there has been an accelerated change of multiple factors in modern society that seriously affects living conditions over

the last recent decades. These changes can have an impact on human beings' lung health resulting in an elevated incidence of disorders related to environmental changes, more specifically to the quality of air that we breathe. A progressively increasing list of respiratory diseases representing a major challenge to human health and productive economy is reviewed. Prevention, control and cure of these respiratory conditions are among the most cost-effective interventions to be taken into consideration and must be a priority for researchers as well as for health official authorities. This workshop is completed by a comprehensive approach of the many novel technologies that greatly improve imaging

and biological monitoring through the different "omics" with the great potential influence for the diagnosis and management of multiple diseases that may allow personalising therapeutic approaches. To sum it up, we have to welcome this excellent material that provides good food for future nice thoughts.

I eagerly invite you to read this new issue of *BRN Reviews* with the hope that you will enjoy its contents. You won't be disappointed!!!