The use of Functional Respiratory Imaging in improving personalized medicine in COPD

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Abstract

COPD is arguably one of the greatest challenges the respiratory world faces. An increasing number of patients is diagnosed with this debilitating disease. At the same time, a cure does not exist, and the therapeutic options are limited. Although spirometry is a useful clinical tool to obtain a general indication of lung health, it lacks the sensitivity to describe the finesses of the disease necessary to phenotype the patient in light of treatment optimization. In this presentation we will present Functional Respiratory Imaging or FRI. FRI uses conventional, low dose HRCT scans and converts them into accurate representations of different lung structures. By using methods from aerospace engineering the static images can be made functional. FRI provides regional information about lung structure and function. The technology has been used extensively in clinical trials to understand the mode of action and heterogeneity of treatments such as bronchodilators, vasodilators, anti-inflammatory drug and a range of medical devices (non-invasive ventilation, lung volume reduction, etc). Consequently, FRI aims to elucidate the heterogeneity of the disease in an individual patient and subsequently match this patient with the optimal treatment. In the presentation, we will pay special attention to the potential underlying vascular abnormalities in COPD and we will draw parallels with the current COVID19 pandemic.

Biography

Jan De Backer graduated from Delft University of Technology, The Netherlands as aerospace engineer. He attained an MSc degree in aerodynamics and specialized in applied biomedical computational fluid dynamics leading to a PhD from the University of Antwerp, Belgium. He is an alumnus of the MBA programs at London Business School, London and Columbia Business School, New York. Dr. De Backer has received several awards for his innovative research in the field of airway modeling in respiratory and sleep medicine. His work has been published in international journals. Dr. De Backer founded FLUIDDA in 2005 and he has held the position of Chief Executive Officer since 2007.

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