

## CARDIOPULMONARY RISKS IN PATIENTS WITH COPD

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### *Abstract*

Chronic obstructive pulmonary disease (COPD) is a significant burden for the global healthcare system, affecting nearly one in ten people. Cardiovascular diseases (CVD) are the most common and important comorbidities in COPD. Both conditions are associated with common risk factors such as smoking, aging, and physical inactivity. In addition, there are common pathophysiological mechanisms for the development of CVD in patients with COPD: hyperinflation of the lungs, hypoxemia, pulmonary hypertension, oxidative stress, impact of systemic inflammation and the influence of certain biomarkers (fibrinogen, interleukin IL-6 and IL-8, C-reactive protein, brain natriuretic peptide (BNP) and N-terminal proBNP, vascular endothelial growth factor, surface-active protein D). Particular attention is paid to cardio-pulmonary risks in patients with COPD to understand the extent and nature of respiratory and cardiovascular events in patients with COPD. This will help to identify approaches for risk reduction and improving clinical outcomes. Besides, the progression of cardiovascular disease is among the factors, triggering exacerbations in patients with COPD, while exacerbations can also trigger adverse cardiovascular events. Exacerbations of COPD increase the risk of cardiovascular events even in patients without a history of CVD due to increased systemic inflammation, hyperinflation, and hypoxemia. Therefore, an important aspect of COPD management is the identification and consideration of cardiorespiratory risk, which is defined as the risk of serious respiratory and/or cardiovascular events in patients with COPD, including, but not limited to, COPD exacerbations, myocardial infarction, stroke, decompensation of heart failure, arrhythmia, and death due to any of these events.

**Key words:** COPD, cardiovascular diseases, cardiorespiratory risk, systemic inflammation, coronary artery disease, myocardial infarction, hyperinflation, pulmonary hypertension, hypoxemia, exacerbation of COPD.

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