

## 19. THE IMPACT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE ON EVOLUTION OF CHRONIC HEART FAILURE

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**Introduction.** According to the latest data, chronic heart failure (CHF) is a significant disease that affects about 26 million people worldwide. It was found that the prevalence of chronic obstructive pulmonary disease (COPD) is about 20% in these patients, especially in smoking people. Sometimes the differentiation of these two conditions is difficult due to the common pulmonary symptoms that patients present and consequently to this, the COPD is often undiagnosed in patients with CHF. Therefore, it is necessary to study and understand what is the interplay between COPD and CHF in order to correctly manage the patient's condition when these diseases coexist.

**Aim of study.** The main aim of this review is to establish the correlation between COPD and CHF and the evolution of CHF in patients with this comorbidity.

**Methods and materials.** This review is based on articles that were published during the last 5 years from the Journal of the American College of Cardiology, Journal of Cardiology, Medscape, NCBI and PubMed database.

**Results.** Recent clinical trials reported that COPD represents a significant predictor for patients with CHF, because both diseases present a high risk of mortality and the hospitalisation rate of patients with CHF and COPD increases by 20-30% compared to those who do not have this comorbidity. As COPD progresses to severe stages, pulmonary hypertension occurs due to hypoxic vasoconstriction and elevation of pulmonary vascular resistance. Therefore, the right ventricle becomes hypertrophied and later dilated, which will eventually lead to systolic and diastolic dysfunction. It is obvious that in such conditions the patient's symptoms worsens and the prognosis becomes more reserved. An interesting fact, that was observed in some studies, is that the pathophysiological mechanisms in patients with CHF and moderate COPD (GOLD stage II) differ from patients with severe COPD (GOLD stage III-IV) described above. It is considered that systemic inflammation from COPD may be responsible for increased risk of cardiac injury in these patients, playing a key role in progression of CHF. This includes a high level of certain biomarkers such as: C-reactive protein, fibrinogen, vascular endothelial growth factor, surfactant protein D, brain-type natriuretic peptide (BNP) and N-terminal proBNP. Finally, this chronic inflammation accelerates coronary atherosclerosis that will lead to left ventricle remodelling and dysfunction.

**Conclusion.** Analysing data from medical literature, I can conclude that there are a significant correlation between COPD and CHF, because COPD facilitates cardiac dysfunction, clinical condition of these patients becomes more severe, increases the rate and duration of hospitalisation and at the same time it is more complicated to manage these two diseases, especially in decompensated patients.