

**Results.** The analysis revealed a higher prevalence of cardiovascular, metabolic and respiratory comorbidities in the subgroup with more severe COPD. Composite clinical scores showed consistent associations with spirometric severity and were useful in evaluating exacerbation frequency and hospitalization burden. HRCT imaging evaluation identified both pulmonary and extrapulmonary abnormalities such as bronchiectasis, emphysema, coronary artery calcifications and osteoporosis, which were more frequently encountered in advanced stages and carried significant prognostic implications. These findings highlight the heterogeneity of COPD.

**Conclusion(s).** Integrating clinical, functional, imaging data and validated comorbidity scores, ensures a more accurate assessment of COPD burden. This multidimensional approach supports improved risk stratification and personalized care. These findings highlight the need to implement structured assessment tools.

**Keywords:** COPD, comorbidities, composite scores, HRCT, GOLD, comorbidity.

## **DISRUPTION OF SPHINGOLIPID AND CHOLESTEROL METABOLISM IN GLOMERULAR DISEASE**

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**Background.** Glomerular pathology involves complex molecular mechanisms, and the metabolic dysfunction of sphingolipids and cholesterol plays a key role in the initiation and progression of glomerular lesions, contributing to the alteration of podocyte structure and function, inducing inflammation and sclerosis.

**Objective(s).** The impact of disrupted sphingolipid metabolism (ceramides and sphingomyelin) and cholesterol in glomerular diseases, as well as the identification of potential targets for therapeutic intervention.

**Materials and methods.** A critical review of literature (2010–2024) was conducted, including experimental, observational studies, and meta-analyses on lipid levels, sphingolipid biosynthesis enzymes, and cholesterol transport in conditions like focal segmental glomerulosclerosis (FSGS), diabetic nephropathy, and membranous glomerulonephritis.

**Results.** Studies show that abnormal accumulation of ceramides and cholesterol in podocytes is associated with cell apoptosis, mitochondrial dysfunction, and loss of glomerular filtration function. Aberrant expression of enzymes in the sphingosine-1-phosphate pathway or dysfunction of cholesterol transporters (ABCA1, NPC1) worsens inflammatory and fibrogenic processes. These changes contribute to the initiation and progression of glomerular diseases by impairing the integrity of the filtration barrier, amplifying oxidative stress, inducing local profibrotic responses, disrupting cellular homeostasis, and triggering persistent maladaptive mechanisms.

**Conclusion(s).** Dysregulation of lipid metabolism is a major and complex pathogenic factor in glomerular diseases. Pharmacological interventions that modulate the metabolic pathways of sphingolipids or cholesterol transport may represent promising and effective strategies for glomerular protection.

**Keywords:** glomerular disease, sphingolipids, cholesterol, podocytes