

THE PATHOCHEMICAL ROLE OF ENDOTHELINS IN KIDNEY DISEASES

Rajan Aravind¹, Sardari Veronica¹

Scientific advisor: Sardari Veronica¹

¹Department of Biochemistry and Clinical Biochemistry Nicolae Testemitanu University.

Introduction. Endothelin-1(ET-1) is an important regulator of kidney function in health and disease. ET-1, largely through activation of endothelin A receptors, has been strongly implicated in renal cell injury, proteinuria, inflammation and fibrosis leading to chronic kidney disease (CKD). **Objective of the study.** To study the pathochemical role and biochemical mechanisms of endothelins in the kidney diseases and to develop an effective treatment in those diseases. **Material and Methods.** To achieve the proposed goal, it has been made a synthesis of the literature published since 2011 until 2022, using 5 bibliographic sources, including electronic libraries like PubMed, Medscape, Hinari. **Results.** The study revealed the role of ET in CKD pathogenesis and discusses the potential therapeutic benefit of targeting the ET system in CKD, with attention to the risks and benefits of such an approach. Endothelin receptor antagonists (ERAs)

have been demonstrated to ameliorate or even reverse renal injury and/or fibrosis in experimental models of CKD, while clinical trials indicate a substantial antiproteinuric effect of ERAs in diabetic and non-diabetic CKD patients even on top of maximal renin angiotensin system blockade. Abnormal activation of the renal endothelin system can promote CKD progression, inhibition of primarily ETA receptors has been shown to ameliorate renal injury and fibrosis at multiple levels. **Conclusion.** Preclinical evidence and early phase clinical trials suggest that ERAs have potential therapeutic benefit as antiproteinuric and nephroprotective drugs for diabetic nephropathy, hypertensive nephropathy, focal segmental glomerulosclerosis (FSGS) and possibly other forms of CKD.

Keywords: endothelins, endothelin receptor antagonists, chronic kidney disease.