

## Comparative Immunohistochemical Study on Collagen Types in Kidney during Aging and Hypertension

*Stancho Stanchev\**, *Alexandar Iliev*, *Boycho Landzhov*

*Department of Anatomy, Histology and Embryology, Medical University of Sofia, Bulgaria*

\*Corresponding author e-mail: [stanchev\\_1989@abv.bg](mailto:stanchev_1989@abv.bg)

Renal fibrosis is characterized by increased synthesis of collagen molecules in the renal parenchyma and interstitium. In the present study, we demonstrated the expression of collagen types I and V and procollagen type III in the renal structure of 12-month-old spontaneously hypertensive rats and age-matched Wistar rats. The main findings included higher immunoreactivity of the examined molecules under hypertensive conditions. The results were obtained by semi-quantitative analysis of the immunohistochemical expression. We found pronounced intraglomerular expansion of collagen type III and V in spontaneously hypertensive rats compared to the normotensive group. In addition, the accumulation of collagen fibers in the renal parenchyma and interstitium was also represented by Mallory's trichrome method. We analyzed the severity of the renal fibrosis as a result of aging as well as in a case of essential hypertension. In conclusion, the development of renal fibrosis is more severe under hypertensive conditions and is associated with specific distribution of the analyzed collagen types.

*Key words:* collagen, kidney, hypertension, aging