# HYSTOPATOLOGY OF KIDNEY TISSUE IN POLYPRAGMASIA

***Mustafoev Zafarzhon Mustafo o`gli***
*Scientific supervisor Associate Professor PhD,*
*Departments of Human Anatomy of Samarkand*
*State Medical University.*
***Ismailov Ortiq Ismoilovich*** *- dotsent*
*Departments of Human Anatomy of Samarkand*
*State Medical University*

**Abstract.** An experimental simulation study with polypharmacy was studied in laboratory rats. For this purpose, rats with the simultaneous use of up to 5 types of anti-inflammatory drugs in the kidney tissue revealed histopathology of the kidneys. In conditions of polypharmacy with anti-inflammatory drugs, alterative changes were noted in the kidney tissue; with prolonged use, necrotic and sclerotic changes began to progress.

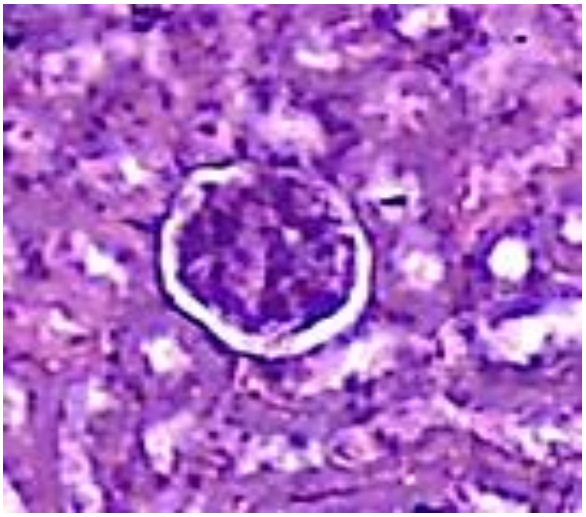
**Key words**: kidneys, white rats, anti-inflammatory drugs, morphometric parameters.

**Relevance.** The kidney, as the central organ of the excretory system, performs an important function of maintaining the constancy of the internal environment of the body, takes part in its regulatory mechanisms.The complexity and variety of functions of the permanent human kidney isprovided by the interconnected and interdependent function of the generations of nephrons and collecting ducts, which have features of the structure of the renal tubules, their length, depth in the cortex and medulla,relative position, and blood supply (Strum J.M., 2010). It is the integrative relationships of the nephrons n conjunction with the collecting ducts that provide the overall excretory function of the kidney. Any drug can have potential nephrotoxicity. Intensive blood supply, as well as the important and responsible participation of the kidneys in the biotransformation of drugs create conditions for wide and prolonged contact of drugs with the renal structures. In some cases (increased concentration, altered chemical composition and physical properties of drugs and their metabolites), this leads to structural damage to the kidney tissue.

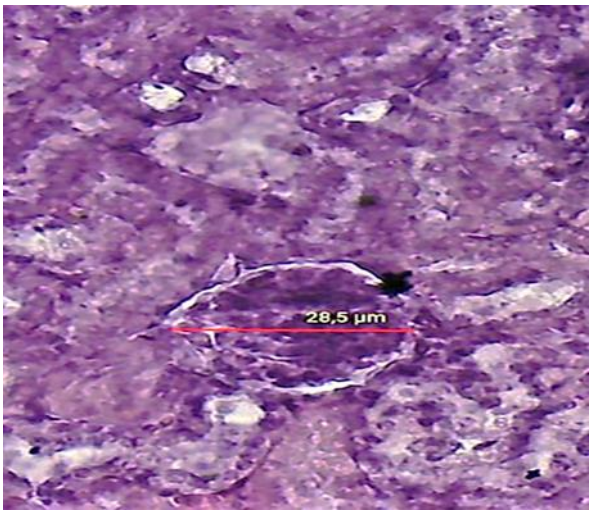
**Purpose of the study.** To study the macroscopic and microscopic changes in the parameters of the renal nephron when modeling renal pathology.

Materials and methods. An experimental simulation study with polypharmacy has been studied in laboratory rats. For this purpose, the rats with the simultaneous use of up to 5 types of anti-inflammatory drugs in the

kidney tissue revealed morphological changes. The rats were divided into two groups: 1st control 15 cases were not exposed to NSAIDs (non-steroidal anti-inflammatory drugs); 2-nd study - 15 cases, within 10 days was prescribed NSPP. Then the animals were dissected, for morphology, one piece of tissue was taken from the kidneys, then fixed in 10% formalin, standard paraffin wiring was carried out and embedded in paraffin. Sections 5-7 mm thick were prepared from paraffin blocks. The preparations



were stained with hematoxylin-eosin, picro-fuchsin according to VanGieson. Results. In both groups, at macroscopic examination, the kidneys were bean-shaped, the capsule was smooth, with the help of a magnifying glass it was smooth, shiny, without visible differences. Microscopically, in the kidney tissue in the study group, some structural differences were revealed, the nature and severity of which depended on the type of active drug. In the glomerular apparatus of the kidneys of rats, focal infiltration of mesangial cells was noted. And in the tubular apparatus of the kidneys, alternative changes were noted, represented by dystrophy and necrosis (Fig. 1). The lumens of the tubules and the cytoplasm of the epithelial cells of the tubules are swollen and granular, the contours are not clear, in a few there was a served epithelium, their nuclei were stained differently (Fig. 2). When staining with picrofuchsin according to Van Gieson, a thickening of the basement membrane of the tubules and glomeruli was revealed. From the duration of the preparations, where polypharmacy was simulated, these changes began to increase and lymphoma-macrophage infiltration was noted, indicating the development of necrotic changes.




Conclusions. Thus, the choice of the object of the study was justified by the fact that the morphology of the kidney and its fibrous capsule, despite the rather extensive data in the literature, under conditions of polypharmacy with anti-inflammatory drugs in the kidney tissue, alterative changes were noted; withprolonged use, necrotic and sclerotic changes began to progress. The study also found that two-thirds of kidney damage cases were associated with three or more drugs taken simultaneously - this confirms the results of other studies showing that polypharmacy (taking multiple drugs at the same time) carries a particular risk of acute kidney disease.

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