

Experimental generalization of anti-nephrosclerotic effects
preparation GA-40 for tubulo-interstitial syndrome

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Purpose of the study - find out the possibilities of protective effect
preparation GA-40 (complex of highly purified vegetable proteins
origin) [5, 6] on the development of tubulo-interstitial syndrome in rats using the
vegetative resonance test "IMEDIS-TEST +",
histological method and correlation optical study of the kidneys.

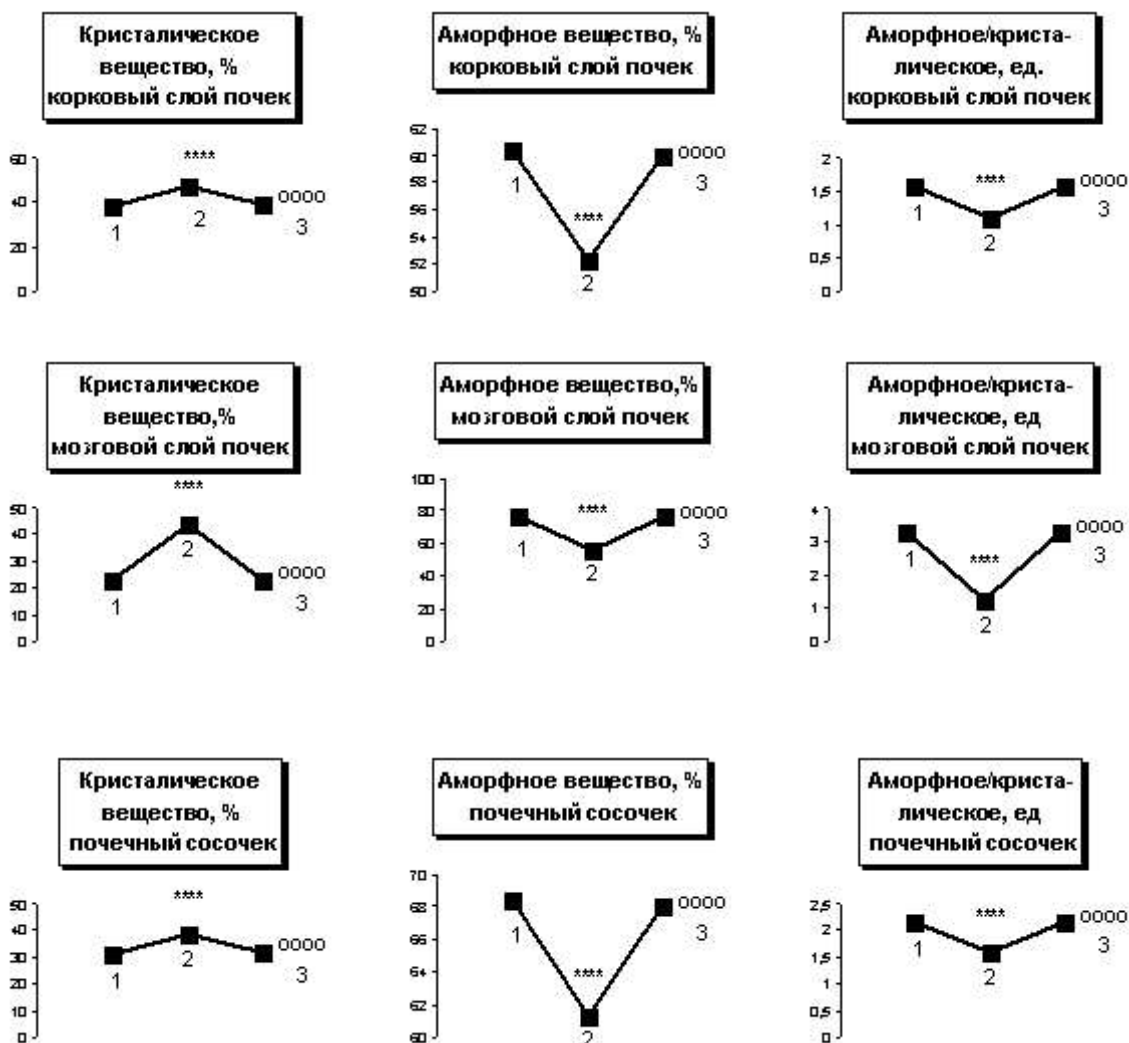
Experiments were carried out on 80 white nonlinear male rats weighing
0.16-0.18 kg. Modeling of Mazuga's nephritis was carried out by 2-fold
intraperitoneal injection of rabbit nephrotoxic serum with a titer of antirenal
antibodies in the complement binding reaction of at least 1: 1024. The studies were
carried out on the 45th day, which corresponded to the development of chronic
Mazuga nephritis with formed tubulo-interstitial syndrome [4, 7]. The killing of
animals was carried out by decapitation under
ethereal anesthesia. For morphological confirmation of development
chronic nephritis and the formation of tubulo-interstitial, histological syndrome
studies of the cortex were carried out kidney with
staining of dewaxed sections with hematoxylin-eosin and according to Slinchenko.
Sublimate nephropathy was modeled by the introduction of a 0.1% solution of
mercuric chloride at a dose of 5 mg / kg with a study during the formation of
tubulointerstitial syndrome (on the 30th day) [7]. Investigated the protective effect of
the preparation GA-40, which was administered daily at a dose of 2 µg / kg. When
evaluating samples of fragments of the cortical substance of the kidneys of rats
weighing 50-100 mg using the vegetative resonance test "IMEDIS-TEST +", samples in
tubes made of thin organic glass were examined in the container of the "IMEDIS-
BRT-PC" apparatus using software (Registration certificate for a medical equipment
product No. FS 022a3066 / 0414-04, issued by the Federal Service for Supervision of
Healthcare and Social Development of the Russian Federation from 8 July 2004)
with the definition on the scale of the biological index: angiotensin 2,
hydroxyproline, p53 protein [1, 2, 3]. Correlation-optical study of the kidneys was
carried out [8].

On the 30th day of sublimate nephropathy, the formation of tubulointerstitial
syndrome was observed in the cortex, medulla and papilla of the kidneys, as indicated by
an increase in crystalline substance (as a marker of collagen) and a decrease in amorphous
(as a reflection of atrophy of nephron segments) [8]. The results are presented in Fig.
1. The preparation GA-40 under these conditions showed an anti-nephrosclerotic effect at the level
of all layers of the kidney, which was accompanied by the normalization of the level of amorphous,
crystalline substance and their ratio.

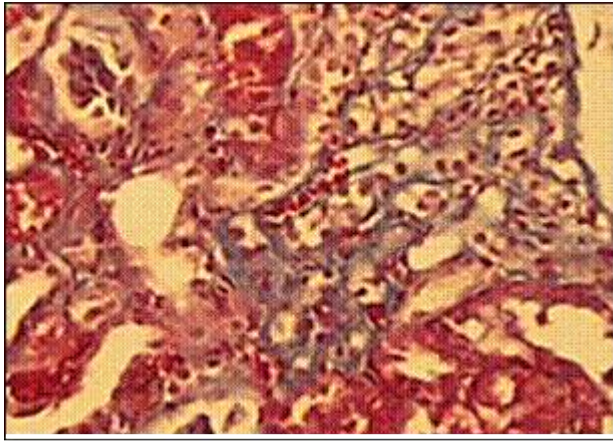
Tubulo-interstitial syndrome was also diagnosed on the 45th day of chronic
nephritis of Mazuga (Fig. 2a), which was manifested by fibrosis of the interstitium,
atrophy of the nephron tubules [4]. In the renal cortex, an increase in the collagen
marker - oxyproline and the pro-apoptotic protein p53 was diagnosed using the
ART "IMEDIS-TEST +" (Fig. 3). GA-40 showed an anti-nephrosclerotic prophylactic
effect under these conditions (Fig.2b,

rice. 3).

The protective effect of GA-40 is due to its ability to induce harmony between the processes (sympathicus - catabolism - acidity) or (parasympathicus - anabolism - alkalinity), as a result of which the vasoconstrictor collagen-stimulating potential of angiotensin 2 and thromboxane A₂ under the influence of the preparation GA-40 causes it anti-nephrosclerotic effect in the chronic period of Mazuga nephritis, sublimate nephropathy and prevents atrophy of tubules and glomeruli nephron due to the processes of apoptosis.

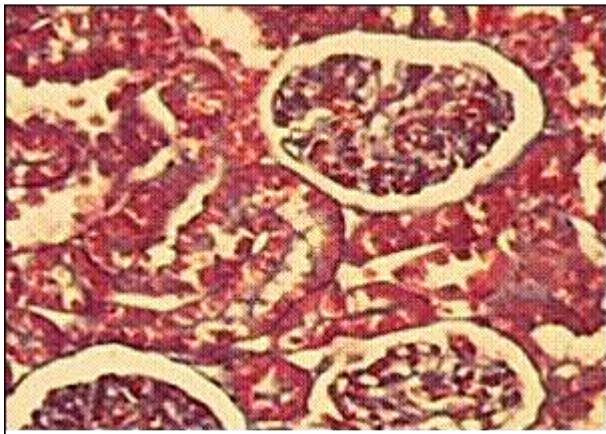


Rice. one. Protective effect of GA-40 on the development of tubulo-interstitial syndrome on the 30th day of sublimate nephropathy according to the data of the correlation optical study of the kidneys. 1 - control (intact animals), 2 - tubulo-interstitial syndrome, 3 - tubulo-interstitial syndrome with the use of GA-40. Significance of differences in marked: **** p < 0.001 in comparison with the control; oooo p < 0.001 in comparison with tubulo-interstitial syndrome on the 30th day of sublimate nephropathy.

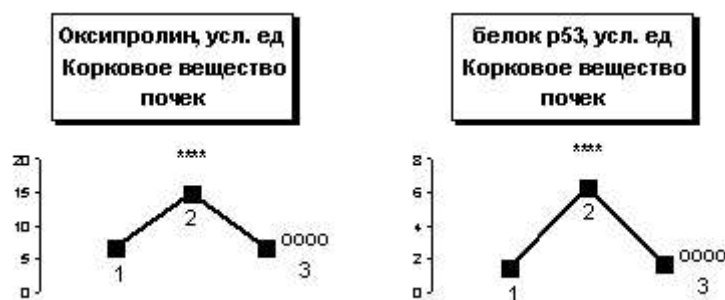


Rice. 2a. Tubulo-interstitial fibrosis of the renal cortex, glomerulosclerosis and the beginning of invagination of the kidney capsule over the site of nephrosclerosis on the 45th day of chronic Mazuga nephritis.

Staining according to Slinchenko. Uv. : x 56.



Rice. 2b. Antinephrosclerotic effect of GA-40 on the renal cortex on the 45th day of chronic Mazuga nephritis. Staining according to Slinchenko. Uv. : x 56.



Rice. 3. Protective effect of GA-40 on the development of tubulo-interstitial syndrome on the 45th day of chronic Masugi nephritis according to testing by the vegetative resonance test "IMEDIS-TEST +". 1 - control (intact animals), 2 - tubulo-interstitial syndrome, 3 - tubulo-interstitial syndrome with the use of GA-40. Significance of differences is marked: **** $p < 0.001$ in comparison with the control; oooo $p < 0.001$ in comparison with tubulointerstitial syndrome on the 45th day of chronic Mazuga nephritis.

Conclusions:

1. Protective anti-nephrosclerotic effect of GA-40 on the development of tubulointerstitial syndrome was confirmed histologically, by the method of correlation-optical diagnostics and by the vegetative resonance test "IMEDIS-TEST +".

1. Antinephrosclerotic effect of GA-40 in tubulointerstitial syndrome prevents the atrophy of the tubules and glomeruli of the nephron, caused by the activation of apoptosis processes, which is accompanied by a decrease in the pro-apoptotic protein p53 and the collagen marker oxyproline.

The prospect of scientific research consists in the further use of the vegetative resonance test "IMEDIS-TEST +" for in vivo assessment of the protective effect of GA-40 in experimental animals with kidney diseases.

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Yu.E. Rogovy, L.G. Arkhipova, I.L. Muravyova, V.G. Savka, M.V. Dikal Experimental generalization of anti-nephrosclerotic effects of GA-40 in tubulo-interstitial syndrome // XIII