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MEDICAL REHABILITATION OF BLOOD FLOW DISORDERS IN PATIENTS WITH ONE-SIDED PATHOLOGICAL KIDNEY LEVER

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Actuality. Analysis of literature sources, previous own studies have convincingly proved that unilateral damage to the paired organ of the kidneys by any pathological process affects the state of blood circulation in the renal parenchyma [1, 2]. The latter not only leads to a violation of the functional state of the affected kidney, but also causes the development of pathological morphological changes in the kidney tissue. However, the contralateral kidney is also negatively affected. The latter becomes a negative reason for the slowdown of compensatory-adaptive reactions to the restoration of the function of the paired organ [3, 4, 5]. The kidneys, due to their functional and anatomical features, are an excellent model for studying hemodynamics, which allows the use of Doppler imaging of the renal arteries to determine the degree of organ damage in systemic diseases. Impaired blood flow in both kidneys with unilateral lesions is due primarily to the pathological effects of the disease on the affected kidney and the development of the reno-renal reflex of persistent vascular spasm of the parenchyma of the contralateral kidney (especially in cases of acute disease) [4]. The release of vasoactive substances into the bloodstream causes a number of vascular reactions, alternating vasoconstriction and vasodilation disrupt the course of adequate adaptive responses to the restoration of blood circulation in the kidneys [3, 5]. The additional impact of surgery also affects the adequate restoration of total renal function [3]. There are two ways to positively affect the state of blood circulation: improving the rheological properties of blood and preventing or reducing vascular spasm of the renal parenchyma, which should be effectively performed during the perioperative period and in the long term after surgery [6].

The aim of the study. To analyze and clinically evaluate the method of perioperative correction of renal blood flow in patients with unilateral kidney damage.

Material and methods of research. The clinical study was performed in 58 patients aged 18 to 65 years with unilateral kidney damage who received surgical

treatment according to the protocols of medical care for a specific pathology, as well as additional measures of perioperative improvement of blood flow in the parenchyma of both kidneys.

All patients with the Philips HD11xE device underwent Doppler examination of the renal arteries to determine the state of blood circulation of the renal parenchyma three times during the perioperative period. To determine the state of renal hemodynamics, indicators such as maximal systolic arterial flow rate (V_{max}) and final diastolic velocity (V_{min}) were evaluated. In the analysis of Doppler also determined the following indices: resistance index (IR), pulsation index (PI), systolic-diastolic ratio (DM). Quantitative analysis of renography determined the duration of the vascular segment (20-60 s); time to reach the maximum level of the T_{max} curve (3-5 min), half-life of ^{131}I -hippuran from the kidneys - $T1 / 2$ (8-12 min).

Research results. Taking into account the above, we used and tested the following scheme of perioperative method of correction of blood flow in both kidneys in unilateral lesions that require surgery. All patients received treatment according to medical care protocols according to the type of disease. Surgical intervention was performed in an adequate amount aimed at eliminating the pathological process and its consequences with intraoperative measures to restore the functional state of the affected kidney. Taking into account the obtained results of clinical research of blood flow, experimental data on modeling of pathological conditions with persistent disturbance of blood flow and urodynamics, the terms of the greatest circulatory disorder were determined: 3rd, 7-10th, 14 days. To eliminate the spasm of the vessels of the renal parenchyma prescribed drugs that belong to the group of sympatholytic substances and do not cause adrenolytic effects (ornide, pyroxane). They were used 3 days before surgery and for 2 weeks after surgery. The appointment of anticoagulants (klexan, fraxiparin, dalteparin) before surgery and for 3 days after surgery was mandatory. In the postoperative period for 2 weeks prescribed disaggregants (cavinton, trental, pentoxifylline). In the remote postoperative period up to 3-4 months, patients were offered phytopreparations that have anti-inflammatory, antispasmodic, antiseptic effect. To control the quality of blood circulation in the renal parenchyma after complete activation of patients after surgery for 10-14 days, the study of blood flow was performed using ultrasound or radioisotope renography. The developed method is used in the treatment of 50 patients with unilateral kidney damage.

After perioperative correction of renal blood flow in patients with unilateral kidney damage for 10-14 days there was a decrease in IR on the renal artery of the affected kidney to 0.64 ± 0.24 vs. 0.69 ± 0.09 , on the segmental arteries resistance index increased to 0.50 ± 0.16 vs. 0.47 ± 0.08 , and on the interlobular arteries was 0.45 ± 0.24 vs. 0.41 ± 0.08 . These data indicate an improvement in blood flow, but this improvement was more related to the consequences of surgical treatment to eliminate the pathological process. Changes in the rate of the opposite healthy kidney were as follows. On the renal artery its value was 0.55 ± 0.14 against the initial value of 0.57 ± 0.16 , on the segmental arteries - 0.29 ± 0.24 against 0.31 ± 0.06 , and on the interlobular arteries - 0.29 ± 0.16 vs. 0.31 ± 0.06 . That is, the changes systematically marked an improvement in blood flow by 7-8%.

Conclusions. The use of drug correction of blood flow in the kidneys of patients with unilateral lesions in the perioperative period allows not only to improve it by 7-8%, but also to create favorable conditions for adequate adaptive-compensatory responses to restore the functional state of both kidneys.

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