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FEATURES OF CHRONIC KIDNEY DISEASE IN PATIENTS WITH ARTERIAL HYPERTENSION

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Abstract:
Arterial hypertension (AH) is currently both a cause and a consequence of chronic kidney disease. Numerous clinical studies have shown the importance of blood pressure control. However, it remains unclear how important blood pressure control is in patients with chronic kidney disease (CKD). CKD is characterized by accelerated vascular aging, in which an age-related increase in arterial stiffness is aggravated by a number of uremia-related processes. Increased arterial stiffness is associated with structural and functional disorders, as well as an increase in cardiovascular mortality in patients with CKD. CKD is characterized by accelerated vascular aging, in which an age-related increase in arterial stiffness is aggravated by a number of uremia-related processes. Increased arterial stiffness is associated with structural and functional disorders, as well as an increase in cardiovascular mortality in patients with CKD.

Keywords: arterial hypertension, chronic kidney disease, arterial stiffness, cardiovascular diseases

Introduction:

Arterial hypertension is the main risk factor for the development of cardiovascular and renal diseases. On the other hand, chronic kidney disease is the most common form of secondary arterial hypertension, and some studies have shown that this pathology is an independent risk factor for developing cardiovascular diseases and is a common cause of death [1]. Chronic kidney disease (CKD) is associated with

an increased cardiovascular risk. Chronic renal failure (CRF) is a syndrome complex that is the outcome of various diseases (both of renal origin and as a complication of diseases of other organs) that determines the prognosis of the underlying disease. It is necessary to improve the early diagnosis of CRF and identify risk factors contributing to the unfavorable course and progression of this pathology, and on this basis, the organization of specialized care [2]. The main causes of death in patients with CKD are heart failure and cardiac arrhythmias [3]. It is necessary to improve the early diagnosis of CRF and identify risk factors contributing to the unfavorable course and progression of this pathology, and on this basis, the organization of specialized care [4]. The results of many clinical studies have clearly demonstrated that effective treatment reduces the negative effects of uncontrolled hypertension. However, patients with combined CKD were excluded. Whereas in studies involving patients with CKD, the endpoint was mainly the progression of kidney disease. Increased arterial rigidity is a hallmark of CKD and is associated with adverse changes in the structure and function of the heart, which may predispose to an increased risk of death from cardiovascular causes. Increased arterial rigidity is detected already at the initial stage of chronic kidney disease, which is so widespread in the developed countries of the world. The mechanisms underlying these changes are undoubtedly diverse, but understanding them is of paramount importance in developing new therapeutic strategies to prevent and even reverse these pathophysiological interactions. Chronic kidney disease, regardless of the presence of other risk factors, increases the risk of cardiovascular diseases inversely proportional to the glomerular filtration rate (GFR) at a level of <60.1 ml/min/1.73 m2 and possibly <90 ml/min/1.73 m2 [5]. Patients with CKD are much more likely to die from cardiovascular diseases than from the progression of CKD and the development of end-stage renal failure (ESRD) with the need for hemodialysis or kidney transplantation. Arterial hypertension is also extremely common among patients undergoing hemodialysis or peritoneal dialysis, as well as patients with kidney transplants. It is worth noting that in patients undergoing peritoneal dialysis, the removal of fluid after the procedure leads to different blood pressure levels before, after and during dialysis. These differences in blood pressure prevent a clear definition of hypertension and target blood pressure in patients undergoing

hemodialysis. Agarwal and Lewis proposed a pre-dialysis blood pressure limit of 150/85 mmri for hypertension detection and control. They showed that blood pressure >150/85 mmHg can lead to hypertension during dialysis with a sensitivity of up to 80% [6]. Based on this definition, they found that 86% of hemodialysis patients had hypertension, including only 30% who had adequate blood pressure control. A similar prevalence of hypertension was observed in peritoneal dialysis patients and in more than 70% of hypertension kidney transplant recipients. There are many contradictions regarding blood pressure control in dialysis patients. Data analysis shows a direct relationship between blood pressure and mortality. However, patients undergoing hemodialysis with initially lower blood pressure have a higher mortality rate. Although the exact pathophysiological cause of this discrepancy is unclear, it is assumed that the high mortality rate in dialysis patients with lower blood pressure is associated with the presence of concomitant severe heart failure. There is reliable evidence that arterial hypertension after transplantation is an independent risk factor for transplant rejection and death, and adequate blood pressure control reduces this risk [7].

Mortality among patients with CKD is mainly due to complications from the cardiovascular system. With the development of terminal renal failure, mortality in these patients is 8 times higher than in the general population [8]. At the same time, in more than 50% of cases, mortality is caused by complications from the cardiovascular system. Thus, in patients with CKD with a high risk of complications, it is extremely necessary to control modifiable risk factors (for example, arterial hypertension). In accordance with the latest national guidelines for the prevention, detection, assessment and treatment of hypertension and recommendations for evaluating the results of treatment of kidney disease in patients with CKD, the target blood pressure level should be <130/80 mmHg [9]. Achieving the target blood pressure slows down the progression of renal dysfunction in CKD and proteinuria. However, it remains unclear whether this target blood pressure value is applicable for all patients with CKD. Firstly, there is no definite evidence that patients without significant proteinuria need strict blood pressure control, as do patients with isolated hypertension without CKD (<140/90 mmHg). Secondly, it has not been established that in patients over 70 years of age, a decrease in blood pressure also has a beneficial

effect on the prognosis of the disease due to the fact that in most studies this group of patients was excluded. Thirdly, an analysis of a significant number of prospective clinical trials has shown that patients with CKD maintain blood pressure below 120 mmHg. It is associated with a high risk of stroke or myocardial infarction if the diastolic pressure is below 80 mmHg [10].

Conclusion:

Increased arterial stiffness is associated with structural and functional cardiac disorders, as well as an increase in cardiovascular mortality in patients with CKD. CKD is characterized by accelerated vascular aging, in which an age-related increase in arterial stiffness is aggravated by a number of uremia-related processes. By reducing the effects on the vascular system of processes that cause structural and functional changes, we can slow the progression of arterial stiffness and reduce the high cardiovascular risk associated with CKD.

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