

## Cardiovascular complications in chronic renal disease

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**Abstracts:** The problem of chronic renal incompetence (CRI) as a manifestation of chronic renal disease (CRD) in the clinic of internal diseases and its influence on a course of cardiovascular diseases is studied. The doctors often deal with ischemic heart disease (IHD), chronic cardiac insufficiency (CCI), hypertonic disease, heart rhythm abnormalities. The problem of timely diagnostics and quality of therapy of these complications acquires a great importance.

**Key words:** chronic renal incompetence, chronic renal disease, cardiovascular complications.

Chronic renal incompetence (CRI), according to the up-to-date classification chronic renal disease, is the urgent problem due its frequency as well as the hard complications firstly cardiologic ones that cause high mortality rate. Cardiovascular pathology is a cause of not less then 30% of urgent hospitalizations of the patients with CRD due to the development of complications mostly IHD, CCI, ventricular arrhythmia, arterial hypertension (Badaeva S.V. et al., 2006). Disturbances of lipid metabolism, particularly an increase of cholesterol level, cholesterol lipoproteins of high and very high density (CHLPHD), decrease of CHLPHD and mineral metabolism accompanying by the calcification of the vessels contribute to the formation of such states in the patients with CRD. Modern methods of functional diagnostics allow to reveal cardiovascular abnormalities at the early stages (Shutov A.V. et al., 2005, 2006, Grigorayn Z.E., Evseeva M.E., 2007). Cardiac rhythm abnormalities occur in 75% of the patients with CRI, of them 12% have atrium fibrillation that increases fatal outcome 1,72 times. The most frequent version of cardiovascular pathology in cases with CRI is a hypertrophy of left ventricular myocardium (Dobronravov V.A., Babarykina E.V. 2005). It is an independent factor of death risk of the patients which is revealed in more then half of the patients with CRI. There is a close correlation between the decrease of kidney function and mass of myocardium (Badaeva S.V. et al., 2004). The connection between CRI, CCI and anemia allows us to speak about cardiorenal anemic syndrome. CRI and anemia independently from each other enhance the death risk of patients with CCI (Shutov A.M. et al., 2006). CCI increases the death risk in dialysis up to 93%. The patients with CRI belong to the category of the patients with the highest risk of development of cardiovascular complications (Grigorayn Z.E., Evseeva M.T., 2007).

### Materials and methods

Taking into consideration the above circumstances, it was decided to analyze the manifestations of cardiovascular interest in patients with CRD having been treated in the therapeutic department (earlier nephrologic one) and urologic department of MEHS (building 3) Blagoveshchensk for 2006-2010 years. 91 patients' histories with CRD on the ground of chronic glomerulonephritis (21 patients-23%), chronic pyelonephritis (44 patients-48,35%), adenoma and cancer of prostate (12 patients-12,8), cancer of urinary bladder (7 patients-7,6%), renal polycyst (4 patients-4,87%) and bilateral hydronephrosis (3 patients-3,29) have been analyzed. CRD has been diagnosed at early stages (II-III by K-Doki, 2002) in 27 patients (29,7%) and in 64 patients (70,3%) at IV-V stages. Diagnosis CRD was made on the ground of accepted up-to-date indices: velocity of glomerular filtration and creatinine clearance. Clinical manifestations and results of additional methods of examination of cardiovascular system: ECG, echocardiography, roentgenoscopy of thorax were evaluated.

### Results

The most frequent manifestation of chronic cardiac incompetence (CCI) was dyspnea. It was revealed in 57 patients of 91 ones (62,64%). 55 patients had fatiguability (60,43%), 47 patients-palpitation (51,64 %), 8 patients-cough (9,74%), 39 patients-peripheral edema (42,8%), 32 patients-

congestive rales in the lungs (35,1%), 26 patients-enlargement of liver (28,5%), 18 patients-atrium fibrillation (19%), 22 patients-tachycardia (24,1%),12 patients-orthopnea (17,1%), 5 patients-swelling of the neck veins (5,49%).On analyses of electrocardiogram the signs of left ventricular hypertrophy were determined in 67 cases (73,6%), the signs of hyperkalemia- in 12 patients (13,1%), atrium fibrillation- in 18 patients (19%), supraventricular tachycardia- in 22 patients (24,1%), atrial flutter- in 5 patients (5,49%),ventricular tachycardia- in 2 cases (2,2%), supraventricular extrasystole- in 6 patients (6,59%), ventricular one- in 2 patients (2,2%). The results of echocardiography showed myocardial hypertrophy in all patients with CRD. 62 patients (85,%) had diastolic function abnormalities, 53 patients (58,2%) had a decreased ejection fraction.

Thus, it should be stated that early manifestations of CCI are revealed in an increasing number of the patients with CRD, but they are not given due importance.

While analyzing a course of the disease it was determined that 88 patients (96,7%) had arterial hypertension. Crisis situations during the treatment at the in-patient department were noted in 26 patients (28,5%) who didn't receive angiotensin-converting enzyme inhibitor (ACEI) or blockers of angiotensin-2 receptors before the admission to the hospital. After administration of these preparations, arterial pressure has been stabilized at the level 140\ 90-160\100 in18 patients (19%). Diuretics were included in the complex hypotension therapy in the case of necessity.

8 patients (8,19%) died from cardiac complications at the in-patient department. The causes of death were myocardium infarction in 1 case, pulmonary edema in 3cases, acute cerebral circulation failure in 1case and progression of CCI in 3 cases. During 6 months after the discharging from the hospital 36 patients have died from cardiovascular complications. Clinical special manifestations of cardiovascular pathology were:

1. Sudden onset and quick development of pulmonary edema, resistance to the conducting therapy, necessity of hemodialysis in the mode of ultra filtration for stopping pulmonary edema.
2. Resistance to hypotension therapy, necessity to administer 2-3 preparations.
3. Practically all patients with CRD had cardiovascular abnormalities. But the sings of CRD eliminating such manifestations make their diagnostics difficult. The up-to-date methods of examination improve diagnostics of cardiovascular pathology at early stages.

### **Conclusions**

According to our data cardiovascular complications are the cause of death of the patients with CRD in 48,3% of the cases. These indices slightly differ from references data (41-42,3% Badaeva S.V. et al 2005, 2006).

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