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**THE CARDIAC AND RENAL CHANGES IN CHILDREN WITH PROGRESSIVE CHRONIC KIDNEY DISEASE**

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Today the methods of renal replacement therapy prolonged life expectancy of children with chronic renal failure (CRF). However, mortality in CRF kept by the progression of cardiovascular complications.

Aim of this work was to identify major changes of renal and cardiac parameters in children with different stages of chronic kidney disease (CKD).

**Materials and methods**. The study involved 71 children 2 - 17 years (mean age 11,2 ± 3,4 y). The average duration of disease was 6,02 ± 3,5 years. All children performed nephro-urological examination with definition of CKD stage (according to GFR, tubular function and concentration), determination of renal blood flow and cardiac activity (data of Doppler and ECG).

**Results.** Depending on the degree of renal function were examined divided into 5 groups. The first group included 11 children with CKD without CRF, the second - 16 children with CKD IIst. (tubular CRF), the III group - 27 children with CKD IIst. (compensated CRF), the IV group - 13 children with CKD IIIst. (subcompensated CRF), the V group - 4 children with CKD IVst. (decompensated CRF).

71,5 ± 18,4% children of 1st group don’t have pathological changes in ECG, but 28,4 ± 18,4% children have a sinus bradyarrhythmias. 56 (78,8 ± 4,8%) children have been identified the abnormal left ventricular chord and / or MVP without regurgitation, all children have been registered normal ejection fraction of left ventricle. In any child doesn’t have renal vascular circulation.

In 27,2 ± 14 % of children of second group was identified sinus tachycardia (heart rate > 95- pertsentelya), in 25,0 ± 13,0% - a reduction of the interval RQ (< 0.1 s ), in 16,6 ± 11, 2% - lengthening the interval RQ (> 0.20 s). In 18,5 ± 9,07% of children were established a minimum flow of regurgitation at the mitral valve. One-third, in 37,5 ± 18,2% of children were found asymmetry in renal blood flow with little ischemia, only 50 ± 18,8% of children had satisfactory performance and adequate renal perfusion.

In 27,2 ± 14,0% patients of group III revealed sinus tachycardia, at 36,3 ± 15,2% - lengthening the interval RQ (> 0.20 ). In 53,8 ± 14,3% of children found regurgitation of blood flow in the right part of heart, namely 38,4 ± 14,0% of transpulmonary and 15,3 ± 10,4% of tricuspid valves. 18,5 ± 7,6% of children had a decrease in ejection fraction and myocardial hypertrophy. Satisfactory renal bleed had only 14,2 ± 9,7% of children. Other children were quite diverse violations as hypoperfusion, hiperperfusion, asymmetry of blood flow, increased peripheral vascular resistance index.

Patients IV and V groups had similar changes in cardiac rhythm as sinus bradycardia (heart rate <5 pertsentelya ), 28,5 ± 18,4% and 66,6 ± 33,3% respectively, violation of precardiac conductivity with shortening RQ (< 0.1 s ) in 42,8 ± 20,2%, and its extension in 28,5 ± 18,4% (> 0,20 sec ) cases. As the progression of CKD in children IV - V groups are increasingly faced myocardial hypertrophy in 35,2 ± 11,9% of children, dilatation cameras - 17,6 ± 9,5%, more stable at 57,1 ± 13,7% of cases have been registered regurgitation in the right chambers of the heart. Decrease of ejection fraction was performed in 29,4 ± 11,3% children.

**Conclusions**. Initial stages of CKD are characterized by a compensatory tachycardia with mild conduction; single minimal change of morphology of the heart. As the progression of CKD increases the frequency of atrioventricular conductivity violations, increasing dilation of the heart chambers. Indicators of renal blood flow had variable changes. All children have been sharp decline in circulation in end-stage of CKD.