

# RENAL TRANSPLANT TO A PATIENT WITH TYPE 2 CARDIORENAL SYNDROME WHO IS ON HEMODIALYSIS: CLINICAL AND PROGNOSTIC FACTORS TO THINK ABOUT

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**Introduction.** Type 2 cardiorenal syndrome (CRS-2) is a complex pathological entity characterized by decompensated chronic heart failure, leading to progressive deterioration of renal function. For patients with CRS-2 who have reached the end stage of chronic kidney disease (CKD), therapeutic options are limited, and renal transplantation remains the only long-term curative solution. The objective of this study is to highlight the clinical challenges, prognostic factors, and therapeutic strategies applied to an advanced CRS-2 patient on hemodialysis who was evaluated for renal transplantation.

**Materials and Methods.** A retrospective analysis was conducted on a 62-year-old patient diagnosed with heart failure with reduced ejection fraction (HFrEF—LVEF 35%) and stage V chronic kidney disease, secondary to ischemic nephropathy, who had been enrolled in a hemodialysis program for 18 months. The pre-transplant evaluation included clinical and biological parameters (NT-proBNP, urea, creatinine, urea/creatinine ratio, and creatinine clearance); cardiovascular risk stratification tests (vascular calcification index, Doppler echocardiography, and cardiopulmonary exercise test); and immunological compatibility analysis. Descriptive and inferential statistical methods assessed correlations between cardiac parameters and post-transplant prognosis.

**Results.** The patient experienced accelerated progression of heart failure, with repeated episodes of refractory cardiac decompensation, necessitating frequent adjustments to hemodialysis parameters (controlled ultrafiltration, individualized sodium profile). The vascular calcification index indicated advanced atherosclerosis and elevated NT-proBNP levels (>15,000 pg/mL). The immunological evaluation revealed a high panel-reactive antibody (PRA > 50%), requiring personalized pre-transplant immunomodulation strategies. Although the patient was deemed eligible for renal transplantation, the perioperative risk was significantly increased due to severe left ventricular dysfunction and associated pulmonary hypertension.

**Conclusions.** Renal transplantation in end-stage CRS-2 patients poses significant challenges both in candidate selection and perioperative management. Rigorous multidisciplinary evaluation, optimization of cardiorenal therapy, and monitoring of cardiac stress biomarkers can improve patient selection and post-transplant prognosis. Further studies are needed to develop personalized risk stratification algorithms for this patient population.

**Keywords:** Type 2 cardiorenal syndrome, chronic hemodialysis, renal transplant, advanced heart failure.