

University of Medicine and Pharmacy Târgu-Mureş

School for Doctoral Studies

Chronic kidney disease management before and after renal transplantation

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PhD thesis summary

An active management strategy of the chronic kidney disease patient, regardless the functional underlayer in which the disease occurs, is nowadays one of the most important public health problems globally. Clinical practice in territorial nephrology departments also covers periodic evaluation of patients with renal function substitutive therapy such as renal transplantation. Advances in histocompatibility, immunosuppression, anti-microbial therapy and peri or postinterventional management of the patient lead to excellent results on short or medium terms.

Long term evolution and prognosis of renal graft recipients is often ruled by potential but hard-to-predict elements that can lead to an altering in graft function and worsening clinical status. This observation is the main desideratum which our scientific research starts from, being a fact known world wide that lipid profile alteration, arterial hypertension and chronic inflammation are elements that can influence graft length functionality.

The general part reflects the actual state of knowledge and analyses the data already in the medical literature regarding the chronic kidney disease and renal transplantat patient, from the concept and surgical protocol to eligibility and selection criteria or immunosuppression. Furthermore, the main early and late complications are overviewed.

The special part of the current thesis comprises the personal contribution and it is structured in two chapters. The first chapter presents a survival study of kidney recipients and the influence of potential complications over survival length, and the second chapter groups the three studies performed during the 4-year doctoral research term.

General survival for Mureş County transplant recipients at 5-years after transplantation is 88,1%, above the average European survival rates. The average survival rate at 5-years after transplantation is higher in patients with grafts from living donors (87,3%) than from deceased donors (84,1%).

The first study entitled "***Lipid disorders in kidney transplantation: a persistent conundrum. Is there any connection with immunosuppressive therapy?***" is a retrospective study conducted on a group of 50 kidney transplant patients and analyses the prevalence of lipid profile disorders and their relationship with immunosuppressive therapy at four different timepoints: 3, 12, 24 and 36 months after transplantation. Values for serum cholesterol were significant higher at 3 months than at 12, 24 or 36 months. Hipertrygliceridemia was encountered in 54,54% cases at 3 months, 37,50% at 12 months, 30,30% at 24 months and 13,33% at 36 months respectively. The comparative study of the lipid profile in patients with cyclosporine-based immunosuppression versus tacrolimus-based immunosuppression therapy, showed no significant differences at 3, 12, 24 and 36 months after transplantation. Our results

are in accordance with similar research studies in terms of higher prevalence of dyslipidemia, although this study was conducted on a relatively young population (age 41.31 ± 11.38 years), with a small percentage of diabetics, and with a 48% rate of patients with body mass index (BMI) over 25 kg/m².

The second study entitled "*The relationship between chronic inflammation and glucidic-lipidic profile disorders in kidney transplant recipients*" has a prospective-observational design and is applied to a group of 36 non-diabetic renal graft recipients. The aim of this study was to investigate the relationship between chronic inflammation (by acute phase reactants and specific inflammatory markers determination) and glucidic-lipidic profile abnormalities (by serum levels of lipid profile components, insulinemia or glycated hemoglobin determination).

Patients with higher serum levels of interleukin 6 had significant higher levels of serum total cholesterol and LDL-cholesterol ($p=0.0242$ and $p=0.0081$ respectively), apolipoprotein B being also significantly higher in this group. Due to the absence of statistically significant differences among glucidic parameters, insulinemia and glycated hemoglobin values between the groups with high and normal range serum interleukin 6, we can conclude that higher levels of interleukin 6 are linked to lipidic disorders and less to glucidic alterations.

The third study entitled "*Office Assessed Blood Pressure and Ambulatory Blood Pressure Monitoring in Chronic Kidney Disease Patients Versus Kidney Transplant Recipients*" also has a prospective-observational design. The main objective of this study was to evaluate potential differences between office assessed blood pressure and ambulatory blood pressure monitoring (ABPM), in two groups of patients, one with chronic kidney disease and one with kidney transplantation as renal function substitution therapy.

In patients with chronic kidney disease, both office assessed systolic and diastolic blood pressure (BP) values were significant higher than those ABPM recorded, even though we performed 5 morning and 5 evening BP measurements at different time points, which suggests that office BP measurements have an overestimating tendency. Mean office assessed diastolic BP values were significant higher than those obtained by ABPM in kidney transplant recipients. We can postulate that electronic ambulatory BP monitoring should be performed routinely in renal graft patients.

The main limitation of our studies are linked to the small number of patients enrolled; considering the special population included in our research, we consider that the results we obtained are relevant in chronic kidney disease management before and after renal transplantation, with the recommendation for extended studies required for clarification.

Keywords: Chronic kidney disease, Renal transplantation, Inflammation, Lipid profile, Interleukin 6