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Factors Associated With Survival of Kidney Allografts

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Kidney transplantation is generally accepted as the best way for renal replacement therapy in patients with end-stage renal disease.[1-5] Kidney transplant recipients could have a relatively high quality of life compared with maintenance hemodialysis.[6,7] Despite the successful kidney transplant surgeries, rejection rate has still a high percentage in these patients; about 10% of them experience rejection within the first year.[8] Knowing the high rate of complications and risk factors affecting kidney allograft survival, most of which are predictable and preventable, this issuehasbecomeincreasinglyimportant. Long-term kidney allograft survival has not paralleled improvements made in the past three decades in short-term survival. As mentioned in the literature, factors that may be related to short-and long-term survival are diverse and various.[9]A main question to be answered about outcomes in kidney transplantationis which factors are associated with short- and long-term graft survival. Accumulating evidence supports that some of the accepted risk factors can be prolonged pretransplant dialysis time, pretranplant and posttransplant hypertension,the use of expanded criteria donors, higher serum levels of creatinine at the time of the first discharge, racialand ethnicdifferencesthatare relatedto thelevelof health services, underlying disease (diabetes mellitus), body mass index, age of recipients, donor type, proteinuria, sex ofrecipient and donor, and infections.[2-6,10-15]

In the current issue of the *IranianJournal of Kidney Diseases,* Mirzaee and colleagues present an effective cure model analysis for improve short- and long-term survival rates of kidney allograft. They used a mixture of cure models to assess the short-and the long-term survival rate.[16] They concluded that pretransplant hypertension, body mass index, a serum creatinine level of 1.6 mg/dL and greater upon discharge from the hospital, and donor age and sex were the risk factors affecting the survival of the kidney allograft. These time-dependent survival factors could be improved by controlling effective variables.Since the long-term kidney allograft survival remains an elusive goal,many studiesare being conductedinthis field, in order tohelpthese patientstohavea better life.[17-19]

The association of many factors such as female sex, black race, older donor age, deceased donor source, delayed graft function, and acute rejection with the duration of allograft survivalformed the basis of study conducted by Gilland colleagues on the relationship between glomerular filtration rate changes and long-term kidney allograft survival.[20] They explained that strategies for improvinglong-term kidney allograft survival that increase baseline allograft function could be more effective than strategies to slow the decline in glomerular filtration rate.

Donor age is a known risk factor for chronic allograft failure in kidney transplant recipients.[21] For determining the interaction between the donor age and risk of allograft failure, a study was conducted by Meier-Kriesche and colleagues,

evaluating 40 289 adults with kidney transplant.[22] The results showed synergistic deleterious effect of increased age in short- and long-term graft survival ratesamong the kidney recipients. Some other pretransplant and posttransplant period factors that are currently used as predictors of graft outcome, and most of them are in research process, including dialysis type, human leukocyte antigen matching, serum CD30, serum CXCL10, cold ischemia time, organ size, renal artery resistant index, urinary CXXL10, and acute tubular necrosis.[5, 23-27] Furthermore, the increasing demand for organ transplantation requires immediateoptimizing of the survival rate of kidney allografts through identifying maliciousand damagingagents. Having these proposed factors in mind can help us to discuss the results reported by Mirzaee and colleagues, some of which are not similar to other findings in this field, such as improvement of graft survival by increasing age of donor and enhanced body mass index{M, 2014 #11}.[16] These differences can be partlyexplained by the smallnumber of samples using in this study.In summary, confirmatory analysis with large databases is necessary to quantify these effects. Transplant centers should follow their patients so closely throughout their lifetime, to make the infrastructuresbetter and create fundamentalchangesin survival of kidney allografts.

CONFLICT OF INTEREST

None declared.

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Recurrent Cytomegalovirus Infection
Prevalence and Risk Factors

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Cytomegalovirus (CMV) is a beta herpes virus that can infect several organs. It is transmitted through infected body secretions, blood, and organ allografts,[1] and is considered as the leading infectious reason of mortality and morbidity in organ transplantation.[2] It is also the most important cause of infectious disease after kidney transplantation.[3] Cytomegalovirus infection is defined according to the American Society of Transplantation's recommendations for use in clinical trials as evidence of CMV replication without any symptoms.[4] The existence of CMV symptoms, which can be characterized as a viral syndrome (fever, malaise, leukopenia, and thrombocytopenia) or as a tissue invasive disease confirmed the diagnosis of CMV disease.[4] In addition, recurrent CMV infection is defined as new detection of CMV infection in a patients that has had previously documented CMV infection.[5]

Several studies have evaluated the impact of CMV infection and disease on kidney transplantation outcomes.[6-8] Reisching and colleagues[9] showed that CMV disease was an important risk factor for acute rejection, particularly in the first 12 months after kidney transplantation. Basri and coworkers[10] stated a possible relationship between CMV infection and graft failure in kidney transplant recipients. Indirect effect of CMV on outcomes of transplantation is enhanced systemic immunosuppression (ie, effect favoring opportunistic infections), increasing risk of posttransplant malignancies (ie, posttransplantation lymphoproliferative diseases),[3,8] CMV-induced vasculopathy and thrombosis,[11] the potential role in allograft rejection (either cellular or antibody mediated),[8] urologic and gastrointestinal complications, etc.[11] It has also shown that CMV infection is an independent risk factor for a high incidence of hyperglycemia[12] and developing new-onset diabetes mellitus, which is an important cause for mortality and morbidity after transplantation.[13]

In the current issue of the *Iranian Journal of Kidney Diseases*, Nafar and colleagues[14] have evaluated the prevalence and risk factors of CMV and its recurrent infection in a sample of 427 kidney transplant recipients. They reported 16% and 4.4% prevalence of CMV infection and recurrent CMV infection, respectively. It means that recurrent CMV infection occurred in 26% of patients after treatment of primary CMV infection. It is similar to the results of a multi-center study of 3065 kidney transplant recipients in Iran.[7] In this study, the authors showed the incidence of CMV infection