Brief Report
Volume 12:5, 2022

Journal of Nephrology & Therapeutics

ISSN: 2161-0959

Open Access

A Report on Cardiovascular Disease after Kidney Transplant

Nagarjun P. Ramaro* and Mahendra Srishanth

Nephrology Division, Manipal Hospital, Bengaluru, Karnataka, India

Introduction

Cardiovascular Disease (CVD) is still one of the top causes of death in individuals with end-stage kidney disease following kidney transplantation (ESKD). With the growing number of patients in need of a transplant, it's more important than ever to identify cardiac risk and avert premature death with a working graft. Because there is increasing demand to increase acceptance rates into transplant programmes as a result of rising dialysis numbers, more patients with a higher cardiovascular disease burden entering dialysis will likely be candidates for transplantation. As a result, the objective is to extend transplantation availability while also improving long-term outcomes. Reducing kidney loss due to premature death from cardiovascular disease is a critical clinical need.

Hypertension, hyperlipidaemia, smoking, and diabetes are all well-known risk factors for coronary artery disease in the general population. Although dialysis patients have a higher risk of cardiovascular disease, kidney donation reduces that risk to that of the general population. Traditional risk factors including diabetes, hypertension, and dyslipidaemia all contribute to the risk of CVD after transplant, but there are also transplant-specific factors to consider. CVD risk is influenced by systemic inflammation, infection, and immunosuppressive medications [1].

About the Study

Dyslipidaemia

In the transplant patient, Ong et al observed that hypercholesterolemia was present in 71.3% of patients within 3 years after transplantation. Dyslipidaemia has been shown to increase the chance of having a myocardial infarction in kidney transplant recipients in an observational study [2].

Peripheral vascular disease

From the clinical perspective, PVD is important because surgeons require suitable vessels for vascular anastomosis, but further PVD also may correlate with cerebrovascular disease and cardiovascular disease. In a study analysing the correlation of peripheral artery disease, quantified by an abnormal ankle-brachial index, with graft failure and mortality rates, it was reported that low ankle-brachial index was associated with a three-fold greater risk of graft failure and a two-fold greater risk of death after transplant.

Role of arteriovenous fistula

Patients with CKD generally are referred for arteriovenous fistula (AVF) creation when the estimated glomerular filtration rate is less than 15 to 20 mL/min/1.73 m^2, or within approximately 12 months of the estimated time to commencement of dialysis. These fistulae also are created as a back-up in many patients initiated on peritoneal dialysis in case of intercurrent illness or abrupt failure of this dialysis mode. The AVF frequently remains functional indefinitely and is not routinely ligated after kidney transplantation [3].

Post-transplant risk factor

Five main risk factors for the development of CVD in the KTx population were identified by multiple previous clinical trials.

Smoking: Patients who were smokers at the time of pretransplant evaluation had a kidney graft survival of 84%, 65%, and 48% at 1, 5, and 10 years, respectively, compared with graft survival in non-smokers of 88%, 78%, and 62% (P ¼ .007). Among patients with a smoking history before transplantation, death-censored graft survival was significantly higher for those who quit smoking before transplant evaluation [4].

Post-transplant diabetes: The development of diabetes after kidney transplant or new-onset diabetes after transplant is common and has been associated with poor CV outcome and CV events for many years. The incidence of post-transplant diabetes has been estimated to be up to 50%.

Obesity: Body mass index independently predicted cardiac risk in sub cohorts with pre-transplant heart disease and with nondiabetic renal failure. The metabolic syndrome in transplant recipients has numerous detrimental effects such as increasing the risk of new-onset diabetes, cardiovascular disease events, and patient death. The cumulative incidence of coronary heart disease events by 60 months after transplant was 5.9% in transplant recipients with metabolic syndrome, compared with 2.3% in recipients without metabolic syndrome [5].

Specific treatment strategies

In addition to lifestyle measures such as undertaking regular exercise, eating healthy, and avoiding smoking, certain specific treatment options have been considered in this population.

Aspirin: In a recent post hoc analysis of the Folic Acid for Vascular Outcome Reduction in Transplantation (FAVORIT) trial, there was a question regarding the benefit of aspirin in stable renal transplants recipients. In a matched analysis in which 981 aspirin users were matched to an equal number of non-aspirin users, no advantage in terms of cardiovascular events or death was observed.

Homocysteine: In this trial, high-dose folic acid versus a low dose in combination with vitamin B12 and vitamin B6 was compared to determine whether decreasing total homocysteine concentrations reduced the rate of the primary composite arteriosclerotic CVD outcomes.

Development of the metabolic syndrome after transplant

The development of the metabolic syndrome after transplant has a strong predictive power for mortality as shown by the Patient Outcomes in Renal Transplantation study investigators in a retrospective analysis.

Conclusion

Although kidney transplantation has been shown to reduce CV events

***Address for Correspondence:** Nagarjun P. Ramaro, Nephrology Division, Manipal Hospital, Bengaluru, Karnataka, India; Tel: +916382890124; E-mail: ramnag.p@gmail.com*

Received: 02 May, 2021, Manuscript No. JNT-22-65872; **Editor Assigned:** 03 May, 2021, PreQC No. P-65872; **Reviewed:** 16 May, 2022, QC No. Q-65872; **Revised:** 20 May, 2022, Manuscript No. R-65872; **Published:** 27 May, 2022, DOI: 10.37421/2161-0959.2022.12.392

compared with remaining on dialysis, patients who undergo transplantation still continue to be at a higher risk when compared with the general population. Strategies that may decrease post transplantation CVD include aggressive management of CVD risk factors before transplantation, identification of patients who are at risk for different types of CVD and treatment of disease-specific risk factors, CVD risk reduction during transition from dialysis to transplantation, and individualized use of immunosuppressant medications in patients with different CVD risk profiles, with the use of minimization or avoidance protocols.

Conflict of Interest

There are no conflicts of interest by author.

References

1. Anderson, Keaven M., Patricia M. Odell, Peter W.F. Wilson and William B. Kannel. "Cardiovascular disease risk profiles." *Am Heart J* 121 (1991): 293-298.
2. Foley, Robert N., Patrick S. Parfrey and Mark J. Sarnak. "Epidemiology of cardiovascular disease in chronic renal disease." *J Am Soc Nephrol* 9 (1998): S16-S23.
3. Rose, Geoffre. "Strategy of prevention: lessons from cardiovascular disease." *Brit Med J* 282 (1981): 1847.
4. Berry, Jarett D., Alan Dyer, Xuan Cai and Daniel B. Garside, et al. "Lifetime risks of cardiovascular disease." *N Engl J Med* 366 (2012): 321-329.
5. Wald, Nicholas J. and Malcolm R. Law. "A strategy to reduce cardiovascular disease by more than 80%." *Brit Med J* 326 (2003): 1419.

How to cite this article: Ramaro, Nagarjun P. and Mahendra Srishanth. "A Report on Cardiovascular Disease after Kidney Transplant." *J Nephrol Ther* 12 (2022): 392.