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Kidney transplantation and assessment of live donors

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Abstract

A number of diseases can damage the homeostatic milieu of the kidneys and can lead to end stage renal disease (ESRD). Some common catalysts to this transition are Diabetes, Chronic Glomerulonephritis, Polycystic kidney disease, Nephrosclerosis, Systemic lupus Erythematosus and Interstitial Nephritis. Patients with chronic end stage renal disease should be strongly considered for renal transplantation as a successful kidney transplant is more effective than long term dialysis and also enhances the quality and duration of life. In the US, currently about 100,000 patients are living post renal transplantation. This represents 27 percent of 350,000 who are enrolled in US ESRD program. To date, more than 250,000 successful transplantations are recorded in the US. Patient survival after a renal transplantation depends on several factors including patient's age, allograft source and comorbid conditions. Gender, Race, and degree of immunosuppression are other factors. Choosing a donor is of utmost importance as it can immensely influence final outcomes. Donor kidneys are usually assessed by means of imaging and scoring systems. Common imaging techniques used are Ultrasonography, Computed Tomography (CT), Digital Subtraction Angiography (DSA) and Magnetic Resonance Imaging (MRI). A single imaging study which can assess vasculature, parenchyma and urinary drainage is preferred. Presence or absence of variant arteries determines the complications during the transplant procedure. Nyberg et al. in 2001, based on various factors including donor age, cause of death, diabetes, hypertension, creatinine clearance, cold ischemia time and plaques in renal artery, developed a scoring system for deceased donor kidneys. Later in 2003, they proposed a revised scoring system that heavily emphasized donor age but also incorporated history of hypertension, creatinine clearance, HLA mismatch and cause of death of the donor. In terms of better patient and allograft survival living donors are preferred then deceased-donor transplantation especially when the renal transplant is done before the onset of dialysis. Live donors go under extensive evaluation before the transplantation. They should have a GFR of 80 ml/min or alternatively renal function level within two standard deviations of the norm calculated for age, per age, and gender, per gender. Preliminary screening includes a thorough physical exam, baseline intravascular pressure, and standard blood pressure assessment, obtaining a complete metabolic panel, and measurement of BMI. Blood group testing, tissue typing, and crossmatching are also necessary. Then the donors are assessed for presence of cardiovascular disease, renal disease and metabolic risk factors that can potentially influence the outcome of the graft survival. Absence of proteinuria is an important factor in assessment of potentially viable renal tissue considered for transplantation. Cardiovascular fitness is assessed via Electrocardiogram, ECHO imaging, and stress testing. Renal Donors are also screened for the presence of viral Hepatitis, including Hepatitis B, Hepatitis C and HIV. After all evaluations are complete, and assessed, a multidisciplinary meeting will take place regarding the possibility of transplantation. Once approved, date and process procedures will be initiated. Prior to the surgery the donor will have meetings with the anesthesiologist, recipient surgeon and social worker.

Biography

Pravin Philip Chacko is a young physician who has recently graduated from Father Muller Institute of Medical Education and Research, India. He is aspiring to match into a surgical or an Interventional Medicine residency program in the USA. He has passion for teaching and serving underserved populations and is looking forward to a long career as a teaching clinician.