RPSG & KDARs Collaborative

The RPSG

The Renal Patient Support Group

Renal Replacement Therapy (RRT)

Renal Transplantation

- Renal transplantation is a major advance of modern medicine which provides high-quality life years to patients with irreversible renal failure and improves long-term survival compared to maintenance dialysis (Garcia-Garcia et al. 2012).
- Renal Transplantation, is the treatment of choice for patients with End-Stage Renal Disease (ESRD) because of lower costs and better outcomes (Garcia-Garcia et al. 2012).
- Renal transplantation is the treatment of choice for CKD stage 5 (Garcia-Garcia et al. 2012).
- It has been limited by immunological rejection, adverse effects of immunosuppressant agents, and a relative shortage of available organs (Garcia-Garcia et al. 2012).

The RPSG
The Renal Patient Support Group

Garcia-Garcia, G., Harden, P., Chapman, J. (2012). The global role of kidney transplant, Indian J Nephrol, 22 (2), 77-82.

Renal Transplantation

- Donor kidneys can be from a living or deceased donor (Voora and Adey 2019).
- Living donor kidneys may be through directed donation, a nondirected donation, or an exchange program in which one donor kidney is swapped with another more compatible kidney (Voora and Adey 2019).
- Deceased donor kidneys are designated by the Kidney Donor Profile Index (KDPI), ranging from 0% to 100%. KDPI scoring system integrates factors including hypertension, diabetes, ethnicity, and donor age (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Renal Transplantation

- The Kidney Donor Profile Index (KDPI) predicts the life expectancy of the kidney, with lower scores predicting longer graft survival as compared with higher scores (Voora and Adey 2019).
- Most kidneys are from individuals declared brain dead and designed as donation after brain death (Voora and Adey 2019).
- Another category is donation after circulatory death. Kidney transplantation from donation after circulatory death donors carries and increased risk for delayed graft function compared with kidneys from donation after brain death donors (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Advantages of Early Transplantation

- Renal transplantation from a Live donor or deceased donor provides the best outcomes among available modalities of RRT (Abevassis et al. 2008).
- In most nephrologist practices, educational efforts regarding modalities of RRT is instituted in CKD stage 3 or early CKD stage 4.
- This should be accompanied by referral for transplant evaluation in early stage 4 CKD. By the time eGFR declines to <20ml/min/1.73m^2 appropriate candidates should have been identified and placed on the waiting list (Abevassis et al. 2008).

The RPSG
The Renal Patient Support Group

Abevassis, M., Bartlett., Collins, A.J., et al. (2008). Kidney Transplantation as Primary Therapy for End-Stage Renal Disease: A National Kidney Foundation/ Kidney Disease Outcomes Quality Initiative (NKF/KDOQI) Conference, Clin J A Soc Nephrol, 3 (2), 471-480.

Advantages of Early Transplantation

- Early renal transplantation is associated with positive patient reported outcomes in terms of patient and graft survival (Abevassis et al. 2008).
- It is clear that transplants performed pre-emptively reduce the frequency of costly complications such as delayed graft function, acute rejection, and allograft failure (Abevassis et al. 2008).
- The KDOQI guidelines recommend that patients with eGFR < 30 ml/min/1.73m^2 be prepared for dialysis and transplantation but do not describe the pre-emptive transplant option in detail (Abevassis et al. 2008).

The RPSG
The Renal Patient Support Group

Abevassis, M., Bartlett., Collins, A.J., et al. (2008). Kidney Transplantation as Primary Therapy for End-Stage Renal Disease: A National Kidney Foundation/ Kidney Disease Outcomes Quality Initiative (NKF/KDOQI) Conference, Clin J A Soc Nephrol, 3 (2), 471-480.

Immunosuppression

- At the time of transplantation, patients are treated with induction therapy: T-lymphocyte-depending agent or an interleukin 2 (IL-2) inhibitors (basilixumab) (Voora and Adey 2019).
- Maintenance immunosuppression is initiated in the hospital and continued for the life of the allograft (Voora and Adey 2019).
- Treatment is started before or at the time of transplantation (Voora and Adey 2019).
- In the early weeks and months post transplantation, the transplantation centre will monitor and adjust levels of immunosuppression (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Immunosuppression

- Target levels are influenced by side effects, infection and malignancy complications, renal predispositions, and transplant duration (Voora and Adey 2019).
- Agents are used in combination to achieve sufficient immunosuppression, while minimizing the toxicity associated with agents (Voora and Adey 2019).
- The higher risk for acute rejection is highest in the first 3 months after transplantation, higher doses are used during this period (Voora and Adey 2019).
- Immunosuppressive medication regimens will result in substantially better patient outcomes than dialysis (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Immunological and Non-immunological factors in transplant outcomes

- Economic barriers
- Biological, immune, genetic, metabolic
- Pharmacological
- Co-morbidities
- Time and Intitation to Haemodialysis
- Donor and organ characteristics
- Tolerance and adherence
- Access to care

The RPSG
The Renal Patient Support Group

Garcia-Garcia, G., Harden, P., Chapman, J. (2012). The global role of kidney transplant, Indian J Nephrol, 22 (2), 77-82.

Monitoring Post Transplantation

- Regular monitoring of renal function is required throughout the life of the transplanted organ (Voora and Adey 2019).
- After transplantation, renal function is monitored twice weekly for a month, with the decrease in the frequency of monitoring over first year (Voora and Adey 2019).
- Standard practice is to monitor laboratory values indicative of transplant function no less than every 3-months indefinitely (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Monitoring of Serum Creatinine (SCr) Concentration

- Acute illness, especially a viral illness or urinary tract infection, it is wise to check the SCr concentration after the illness because of generalized immune response can trigger rejection (Voora and Adey 2019).
- The rule in monitoring transplant recipients is that a 20% to 25% increase in SCr concentration above baseline warrants attention (Voora and Adey 2019).
- Gold standard assessment of increased SCr concentration is renal biopsy (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Cellular Rejection

- Cellular rejection is most likely to occur in early weeks to months post-transplant or later, especially if immunosuppression is reduced (Voora and Adey 2019).
- Cellular rejection commonly presents an asymptomatic increase in Scr level (Voora and Adey 2019).
- Symptoms of rejection including fever, graft tenderness, oliguria, and hypertension (Voora and Adey 2019).
- Treatment of rejection is dependent on the severity and degree of background chronicity (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Humoral Rejection

- It is a rare occurrence, but can develop within seconds of implantation as a result of high levels of antibodies against antigens on the endothelium of glomeruli and microvasculature of transplant (Voora and Adey 2019).
- Humoral rejection can leads to necrosis (Voora and Adey 2019).
- The detection of donor-specific antibodies and sophisticated cross-matching techniques have largely eliminated this complication (Voora and Adey 2019).

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Humoral Rejection

- Acute Antibody-Mediated Rejection (AMR) occurs within the first weeks to years after transplantation (Voora and Adey 2019).
- The most common mechanism underlaying AMR is an antibody response that results from prior antigenic exposure such as:

  - Pregnancy,
  - Blood Transfusion,
  - or Prior Transplantation

The RPSG
The Renal Patient Support Group

Voora, S., Adey, D.B. (2019). Management of Kidney Transplant Recipients by General Nephrologists: Core Curriculum 2019, Am J Kidney Dis, 73 (6), 866-879.

Best Practice

- The outcome benefits of pre-emptive transplantation do not seem related to native GFR at the time of surgery. The GFR at the time of transplantation exerts little influence on eGFR of the allograft (Abevassis et al. 2008).
- Appropriate timing of pre-emptive transplantation should be individualized, based on patients variables including rate of progression of CKD, symptoms attributed to CKD, management of comorbidities, donor and candidate convenience (Abevassis et al. 2008).

The RPSG
The Renal Patient Support Group

Abevassis, M., Bartlett., Collins, A.J., et al. (2008). Kidney Transplantation as Primary Therapy for End-Stage Renal Disease: A National Kidney Foundation/ Kidney Disease Outcomes Quality Initiative (NKF/KDOQI) Conference, Clin J A Soc Nephrol, 3 (2), 471-480.

ACKNOWLEDGEMENTS

Orzechowska, K

Coventry University,
England – United Kingdom

The Renal Patient Support Group (RPSG),
England – United Kingdom

Christine, H

The Renal Patient Support Group (RPSG),
England – United Kingdom

The Kidney Disease and Renal Support (KDARs) for Kids,
England – United Kingdom