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List of Abbreviation

ALT ..... Alanine Aminotransferase

AST ..... Aspartate Aminotransferase

ATG ..... Anti thymocyte globulin

CKD ..... Chronic Kidney Disease.

CNI ..... Calcinurin inhibitors.

ESRD ..... End Stage Renal Disease.

GFR ..... Glomerular Filtration Rate.

HBV ..... Hepatitis B virus.

HCV ..... Hepatitis C virus.

HD ..... Hemodialysis.

K/DOQI ..... Kidney Disease Outcome Quality Intiative.

KDIGO ..... Kidney Disease Improving Global Outcomes.

MMF ..... Mychophenolate Mofitil.

MPGN ..... Membrano- Prolifrative Glomerulonephritis.

mTOR ..... mammalian Target Of Rapamycin.

NAT ..... Nucleic acid Amplification Technique.

NKF ..... National Kidney Foundation.

NODAT ..... Neo Onset Diabetes After Transplantation.

PCR ..... Polymerase chain reaction

RRT ..... Renal Replacement Therapy.

RT ..... Renal Transplantation

SRTR ..... the Scientific Registry of Transplant Recipients

Introduction

Kidney transplantation is renal replacement modality of choice for ESRD and is associated with lower mortality and improved quality of life compared with chronic dialysis treatment ***(Tonelli et al., 2011).***

HCV infection is a risk factor for graft loss and death in the long term with a higher rate of post-transplant complications ***(Morales et al., 2004).***

Egypt has the highest prevalence of antibodies to hepatitis C virus (HCV) in the world estimated nationally at 14.7% and more than 500,000 new HCV infections per year were estimated, iatrogenic transmission is the most likely ***(Miller and Abu Raddad, 2010).***

The prevalence of anti- HCV antibodies among kidney recipients living in different countries varies between 2.6% and 66% .it is also different between centers and geographic areas ***(Moghaddam et al., 2008).*** The prevalence in Egypt according to the Egyptian renal registry is 52.1 % ***(Afifi, 2008).***

The literature is poor in studies relevant to the prevalence of HCV and HCV seroconversion after kidney transplantation in our country.

Aim of the Work

The aim of this work is to evaluate the rate of HCV seroconversion after kidney transplantation in single center in Egypt (Nasr city insurance hospital kidney transplantation outpatient clinic) and its possible causes as well as the impact of HCV and conversion on relevant biochemical markers.

Chapter (I): Renal transplantation

The definition of chronic kidney disease (CKD) has been simplified over the last 5 years. It is now defined as the presence of kidney damage for a period greater than 3 months. An estimated or measured glomerular filtration rate (GFR) of less than 60 ml/min/1.73 m2 is considered abnormal for all adults. A rate of more than 60 ml/min/1.73 m2 is considered abnormal if it is accompanied by abnormalities of urine sediment or abnormal results of imaging tests, or if the patient has had a kidney biopsy with documented abnormalities. As the reporting of estimated GFR has become more common, the relatively high prevalence of impaired kidney function (i.e., estimated GFR < 60 ml/min/1.73 m2) has become evident. The National Kidney Foundation (NKF) in the United States has published a classification system based on GFR as well as urinary and anatomic abnormalities (table 1) to enhance the identification and management of CKD ***(Levin et al., 2008).***

Table (1): Showed classification of stages of chronic kidney disease ***(Levin et al., 2008)***

Classification of stages of chronic kidney disease		
Stage	**Description**	**GFR ML/min/1.73M^2**
1	Kidney damage with normal or increased GFR	≥ 90
2	Kidney damage with mild decrease in GFR	60-89
3	Moderate decrease in GFR	30-59
4	Severe decrease in GFR	15-29
5	Kidney failure	<15 Or dialysis

General management of CKD:

The general management of the patient with chronic kidney disease involves the following issues:

1. Treatment of reversible causes of renal dysfunction.
2. Preventing or slowing the progression of renal disease.
3. Treatment of the complications of renal dysfunction.
4. Identification and adequate preparation of the patient in whom renal replacement therapy (RRT) will be required ***(Schieppati et al., 2005).***

Once it is determined that RRT will eventually be required, the patient should be counseled to consider the advantages and disadvantages of haemodialysis (in-center or at home), peritoneal dialysis (continuous or intermittent modalities), and renal transplantation (living or deceased donor). The 2006 kidney disease out comes quality initiative

(K/DOQI) guidelines recommend that patients with a GFR less than 30 ml/min per 1.73 m2 should be educated concerning these issues ***(K/DOQI Guidelines, 2006).***

Kidney transplantation is the treatment of choice for end-stage renal disease. A successful kidney transplant improves the quality of life and reduces the mortality risk for most patients, when compared with maintenance dialysis. To facilitate early transplantation, a 2008 National Kidney Foundation/Kidney Disease Outcomes Quality Initiative (NKF/KDOQI) conference suggested early education and referral to a transplantation center plus the identification of potential living donors ***(Abecassis et al., 2008)***.

Advantages of renal transplantation

It is now well established that early kidney transplantation is associated with optimal outcomes in terms of patient and graft survival. Not as widely appreciated is the potential salutary impact of preemptive transplantation on peaks (in cost, morbidity, and mortality) and valleys (in employability and quality of life) that occur with transitions in CKD care (Fig. 1) Whereas mortality within the first year of initiation of RRT has steadily declined for patients who are on peritoneal dialysis and those who receive transplants, early mortality on haemodialysis remains high and relatively unchanged since the mid-1990s . Furthermore, of patients who were on dialysis for 1 yr, only 24% returned to work after transplantation, compared

with at least one half of those who received a transplant preemptively. A key benefit of preemptive transplantation may therefore reside in avoiding these coincident positive and negative peaks in mortality and quality of life, respectively, by smoothing the transition to RRT, for an appropriate candidate, "Transplant First" should always be the goal ***(Abecassis, et al., 2008)***.

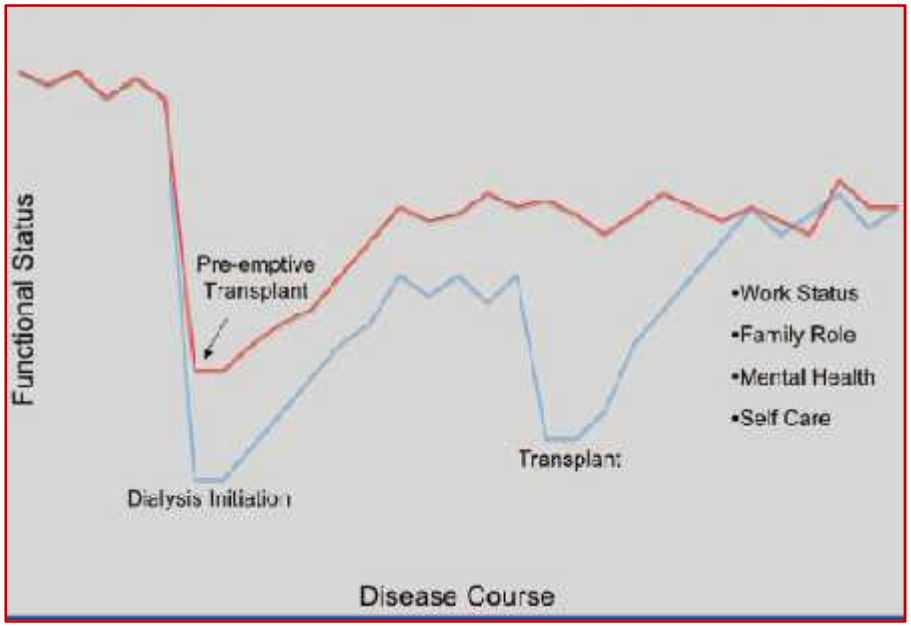

Fig. (1): Decline in functional status associated with institution of dialysis, recovery, then a secondary decline associated with transplantation. Preemptive transplantation has the potential to decrease substantially the adverse impact of RRT on quality-of-life measures **(NKF/KDOQI Conference on Early Kidney Transplantation, Washington, DC, *(Abecassis, et al 2008)*.**

Renal transplantation

The underlying reasons for improved survival with renal transplantation compared with dialysis are unclear. However, since a functioning renal allograft more closely resembles a normal kidney than does maintenance dialysis therapy, it is possible that the survival benefit may result in part from improved clearance of uremic toxins. A possibility is that the recovery of renal function with a functional renal allograft lowers the inflammatory and/or oxidative state found in patients undergoing chronic dialysis. This has been reported in some studies for levels of C-reactive protein **(CRP),** tumor necrosis factor –alpha **(TNF- α)** and interleukin-6 ***(Cueto-Manzano, et al., 2005).***

Overall, costs attributable to maintenance of a kidney transplant are less than one third those that are associated with long-term dialysis. It is now clear that transplants performed preemptively reduce the frequency of costly complications such as delayed graft function, acute rejection, and allograft failure. Although available estimates remain inexact, it is likely that by also avoiding the initiation of dialysis with its attendant complications, preemptive transplantation imparts substantial cost savings to the Medicare ESRD program.

Estimates performed by Eugene Schweitzer **(Figure 2)** indicated that the lengthier the period of dialysis avoided, the greater the cost savings to be realized ***(Innocenti, et al., 2007).***

For appropriate candidates, kidney transplantation from a living donor or deceased donor provides the best outcomes among available modalities of RRT; time spent on dialysis