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Barrier and Risk Factors During Living Donor Kidney Transplantation

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ABSTRACT

Recurrent disease and chronic rejection can effect on the long term graft survival to avoid this problem successful transplantation are required which can promote recognition of both the immediate post-transplant surgical and medical complications. There is imbalance between donor and recipient blood group types in general population and incompatible between donor and recipient pair. Typically kidney pair donation is more when recipient with type O blood group and donor with non-O blood group. In United State, racial ethnic minorities substantially less like to receive living donor kidney (LDK) even if they experienced disproportionally high rate of end stage renal disease. This we highlight current initiative which can cause barriers which prove as a benefit for racial ethnic in LDK. The current information after living kidney donation is important to help the donor candidates. The risk determined is baseline risk an absolute risk. The death and other complication are rare but these vary by clinical and procedure factor. In the case pregnancy the donor impute the risk of hypertension or preeclampsia. . Selection of living donor should point out the developing techniques for risk indication according to donor characteristics.

Keywords: *Kidney Donation, Steatosis, End Stage Renal Disease, Dialysis, Renal Replacement, Donor-Recipient Variables.*

INTRODUCTION

When patient is end stage to renal disease then patient is treated with dialysis techniques. In the total world population 636,000 adults diagnosed with end stage renal disease (ESRD) (Maripuri, Ikizler, & Cavanaugh, 2013). There is a gap between organ availability and demand, living organ transplantation overcome shortening of organs (Chandran & Vincenti, 2014). Living donor kidney transplantation (LDKT) has better survival rate and quality of life of recipient as compared to deceased (Cubbin & Winkleby, 2005) .

If we want long term graft survival then successful transplantation is necessary from which we can identify. For the organ transplantation human leukocyte antigen (HLA) is the most important proportion of the patient (Johnson et al., 2016). They will have to wait to find their matching donor in living donor those will have to wait whose blood type incompatible (ABOi) if they have to wait longer, so the rate of mortality will be increases on the kidney transplant list (Massie et al., 2017; Okumi et al., 2016).

If organ procreant and transplantation network able to provide the blood type or HLA incompatible transplant can decrease the mortality and it will give hope to those patients who are in list (Johnson et al., 2016). LDKT shows optima therapy for patient with ESRD by providing clinical benefits as compared to dialysis and deceased donor kidney transplantation including better quality of life and graft patients (Chandran & Vincenti, 2014; Garonzik-Wang et al., 2012) living donor kidney transplantation provide a good opportunity of long term survival (Kumar et al., 2016; Wasser, Boner, Koslowsky, & Lazar, 2018). The risk in the uric acid after donation is modest. There is small increase of gout incident within 8 years as compared to healthy non-donor. Selection of living donor should point out the developing techniques for risk indication according to donor characteristics (Lentine & Segev, 2017).

Barriers to Living Donor Kidney Transplantation

It includes recipient donor level, health system level and population, community level.

Recipient donor level

It is postulated that donor and recipient combined with obesity, diabetes and hypertension with higher rate of risk to surgical LDKT to lower rates of minorities completing the transplant evaluation process (Gander, Gordon, & Patzer, 2017). Complete transplantation evaluation and workup encounters barriers to successful LDKT (Gander et al., 2017) such as ABO incompatibility and human leukocytes antigen sensitization HLA(Gordon et al., 2016) low health literacy, which is highly widespread among minority adults (Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009)may be related with suboptimal transplant self-care and lower level of kidney function among LDT recipients (Zorn et al., 2018)

Health system level

Renal replacement therapy initiation has been associated with reduced access to transplantation, higher rate of incomplete transplantation and lower referral rate transplantation (Garonzik-Wang et al., 2012; Patzer et al., 2016). Limited availability of blood compatibility and less contribution to kidney paired donor exchange program participate to disparate rate of LDKT (Weng, Reese, Mulgaonkar, & Patel, 2010)Significant proportion of living donors show lack health insurance at tie of LDKT (Weng et al., 2010)

Population, community level

Majority of LDKT recipient receive donation from relatives and non-relatives of close social networks (Gander et al., 2017) Community awareness about benefit and need for LDKT as well as poor access to health care server as barrier to living donor transplantation. Less access to healthy, resources removal and lower socioeconomic status may participate to suboptimal post LDKT outcomes within racially segregated minority communities (Hanson et al., 2016)

DONOR RISK FACTOR FOR GRAFT DYSFUNCTION

Older donor age

The term older donor expands the donor pool, young adult donor is known as idea donor. From the report 2008-2012, 40 year donor were 88%, 40-49 years donor were 86%, 50-59 years donor were 85% and 60-69 year donor were 82% (Perez-Saez, Montero, Redondo-Pachon, Crespo, & Pascual, 2017). There maybe two factors for older age allograft frustration. First is the older hepatic parenchyma in mouse model, older livers shows necrosis and neutrophil that secured hepatocytes to cellular edema. Second is the probably synergistic (Jimenez-Romero et al., 2013) several studies show that older donor liver is primary non function that may cause death in seven days of transplant. Some studies also shows that the HCV reading is positive in younger age donor (Abdel-Khalek et al., 2018; Metzger et al., 2003).

Donation after cardiac death status (DCD)

DCD term refer to the reclamation of organ from a donor who is feeling circulatory arrest to comfort life after medical involvement (Abdel-Khalek et al., 2018). Warm ischemia reveals another way that intensifies

post-transplant issues. Although DCD has worse outcome but it is using steeply. It is found 4.5% of all liver transplants in USA 2008 (Okaya et al., 2005).

Cold ischemia time (CIT)

It starts from varied cold flush in donor. In this process the organ is removed from storage into recipient for surgical process. There are any factors that increase CIT is related with post-transplant outcomes (Bonner, Joshi, Seibert, & Kayler, 2019). An analysis transplant related factor by using the method UNOS/OPTN has showed that , for every hour of CIT threat of graft frustration increase by 2%(95% CI= 1-3%) 35. It is specially noted that CIT decreased in US from median of 7.1(6.0-9.4) hours to 6.6 (5.0-8.3) hours. Europe and Canada showed the same result (Okaya et al., 2005)

MEDICAL RISK FOR LIVING KIDNEY DONOR

Hypertension

It is well known that blood pressure increased with aging, and GFR reduced with age in kidney donor and this raises the risk of hypertension (Boudville et al., 2006; Lam et al., 2015). Existing studies cover the effect of kidney donation on hypertension risk.it can be increase or decrease by selecting a healthy kidney donor population .use of anti-hypertension medicine was low in privately insured donor as compared with age and sex matched unscreened benefits in same insurance plan (Lentine & Segev, 2017).

In US black donor have high rate of post donation hypertension diagnosis and antihypertensive medication use have been reported in black then white donors (Lentine et al., 2010) on the basis of data should use antihypertensive treatment over the expected age.

Gestational hypertension

Two chronological studies that were made in US and Norway reported that gestational hypertension among the women with pregnancies after donation compared with pregnancies before donation are higher (Lentine et al., 2010) .For women child bearing energy consider the donation we recommended AST LDCOP consensus statement counseling should include the increase in the risk of gestational hypertension similar with healthy women (Lentine & Patel, 2012; Maggiore et al., 2017).

Gout

Kidney donor can be on higher risk of gout. Kidney donor have higher uric levels as compare of healthy men (Steiner, 2004). It starts from 6 months and complete follow up of 36-months available. The gout risk may be different in different peoples according to region. Post donation gout risk increase with older age in men in US. When compared with donor without gout contain others abnormalities of kidney (Boudville et al., 2006).

Metabolic bone disease

Metabolic bone disease development is not clear in donors with decreasing GFR values. The ALTOLD observation found that 23% higher parathyroid hormone quality in 201 donors that were examined at 6 months. The CRIB studies also shows that 68 donors at US research centers larger in serum fibroblast growth factor (Kaplan & Ilahe,

2014) .Although early difference in parameters ,studies of 2015 in Ontario and Canada that the risk of no trauma-upper or fractures- lower not increase. And there is no difference in prescription for bisphosphonates compared with the healthy controls (Reese et al., 2018; Steiner, 2004)

DONOR RISK FACTOR FOR DISEASE TRANSMISSION

Viral hepatitis B

Hepatitis B core antibody positive (HBsAg+) donor is more acceptable then the surface antigen negative (HBsAg -) in organ donor process. Its serological profile may sustain to block covalently closed circular HBV DNA (Jin et al., 1996). In United States there is 8% detect HBV DNA in liver. The transmission of disease in adults are ore higher if we transfer the organ from HBsAg+ to HBsAg-donor will not survive properly or may be take less time for survival (Cantarelli & Cravedi, 2019)

Hepatitis C

De Novo HCV infection is an important if we transplant these types of grafts into HCV- into native recipient. Recipient who have HCV Ab+ grafts has authentically been constricted because they have genotypes 1to 4 it can lower sustain virological response rates with antiviral treatments into recipient which have genotype 2or 3 is more preferable.

The acceptance is more effective and more sufficient direct acting antiviral agents against all HCV genotypes by eliminating this restriction upcoming (Shores, Dodge, Feng, & Terrault, 2013)

Human Immune Deficiency Virus (HIV)

The process of transplantation permit the transfer of organ from human immune deficient virus (HIV) into the recipient who is HIV infected (Matas, Hays, & Ibrahim, 2017). Furthermore there is limited number of transplant center that pay role in transplantation process (Mgbako, Glazier, Blumberg, & Reese, 2013)

CONCLUSION

As living donor kidney transplantation shorten wait time for much patience and better their survival. Various barrier to LDKT, to assist patients and their families for making decision about LDKT, various aids have been developed, tested are available to overcome these barriers. LDK is an importan5 treatment option for those patients wh0 are suffering from kidney faiure.it performs any benefits to those patients and society this is the study of communication of donor risks which provide the clear summary about the comparison, distinguishing comparison within the donor population continued efforts are needed to perform this assessment because some risks are uncertain or evolving.

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