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Kidney transplantation and its association with depression: A Review

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ABSTRACT

There is a link between psychological pain and renal function as well as between income marital status and the social class of the kidney transplant patients. Although kidney transplantation improves quality of life, patients may experience a variety of psychological conditions that are linked to an increased risk of morbidity and death and even the emergence of end-stage renal disease dependent on dialysis. 46% of kidney transplant recipients were termed upset if their scores were less than 5 according to a general health questionnaire. The primary emphasis of this review study is depression, which is the most prevalent psychological condition among kidney transplant recipients. The prevalence of depression among kidney transplant recipients, risk factors for depression among kidney transplant recipients, clinical outcomes, and essential preventative measures are all covered in detail in this review study.

Keywords: *Depression, kidney transplant patients, dialysis*

INTRODUCTION

The living kidney transplantation procedure in India has developed over the past 45 years (Terrie, 2017) and is currently the second-largest procedure in terms of numbers after the United States. Organ transplantation has become a common treatment for end-stage organ failure, and kidney transplantation is one of the most common types (Shroff et al., 2016). Kidney transplantation promotes survival in patients with end-stage renal disease (ESRD) (Jha et al., 1996; Molnar-Varga et al., 2011). It may be divided into those with living or deceased donors (Lee et al., 2020).

Although kidney transplantation ameliorates the patients' quality of life, they experience a high level of psychological disorders, of which depression is one of the most common (Lin et al., 2016; Little et al., 2017). Globally, depression is a common mental disorder that is characterized by persistent sadness and a loss of interest in activities (Cho et al., 2022). Depression is more common in patients with ESRD than in those without ESRD (Hedayati et al., 2009). Depression is associated with an increased risk of morbidity, mortality, and even progression to dialysis-dependent ESRD (Kimmel et al., 1993; Balogun et al., 2012; Chiang et al., 2015). Studies reported a prevalence of depression in ESRD patients of 21% to 38% (Hedayati et al., 2009; Andrade et al., 2010; Balogun et al., 2012; Chilcot et al., 2014).

Kidney transplantation is a serious event that involves profound psychological, relational, and various social changes for the recipients (De Pasquale et al., 2020). Depression has been found to have a negative impact on patient outcomes, including graft and patient survival (Akman et al., 2004; Novak et al., 2010). Although medical science and technology have progressed in this field, problems remain that affect the number of transplants as well as their success (De Pasquale et al., 2020), and additionally, the main difficulty is managing pre- and post-transplant pathways. Organ transplantation is a very risky and particularly stressful step in that the patient requires to put his bio-physical and social skills to use so that the new organ is accepted and integrated by the body physically and mentally (De Pasquale et al., 2020). Additionally, in the recovery of kidney function, kidney transplantation facilitates improvement in various psychological stressors and ultimately offers a significant survival advantage (Zelle et al., 2012). A study showed that depression increases the risk of mortality in organ transplantation, including kidney transplants (Wang et al., 2020). Studies reported a prevalence rate of 22% to 41% depression in kidney transplant patients (Arapaslan et al., 2004; Szeifert et al., 2010; Tsunoda et al., 2010), which contributes to unfavorable results and the risk of mortality (Akman et al., 2004; Novak et al., 2010), most particularly in patients with poor treatment compliance (Akman et al., 2004; Jindal et al., 2009; Novak et al., 2010).

METHODS

A thematic review of database was carries out in order to analyze the existing literature concerning the occurrence of depression in kidney transplant patients. Prevalence of depression among kidney

transplant patients is assessed through peer-reviewed articles. Literature search was performed on Google scholar and a comprehensive search of PubMed is done.

Prevalence Rate of Depression

According to organ donation statistics, 105,800 men, women and children are waiting for transplantation. 17 people die each day waiting for an organ transplant and 40,000+ transplants were performed in 2021 (HRSA, 2021). 60% of solid-organ recipients experience depression, independently linked to independently linked to both mortality and morbidity. (Corbett et al., 2013). As a result of the assessment that was done, there are different prevalence rates for depression in renal transplant patients (Chilcot et al., 2010; Palmer et al., 2013). 46% of kidney transplant recipients with General Health Questionnaire-30 score of 5 or higher were reported to be distressed. (Kalman et al., 1983). According to a research by Novak et al. (2010), 840 kidney transplant patients showed a 22%-point prevalence of depression. According to a Medicare analysis of 147,899 kidney transplant patients, the cumulative annual incidence of depression was 5.05%, 7.29%, and 9.1% three years after the transplantation (Dobbels et al., 2008). Kidney transplant improves the quality of life, but they still experience depression due to various psychosocial issues. A study revealed that the prevalence of depression is lower in transplant patients compared to dialysis patients, which is 22% vs. 33%, respectively (Szeifert et al., 2010). A study by Zimbrean. (2022) 85.8% of kidney transplant patients suffers from depression and implied that depression is the common in post-transplantation recipients. Additionally, it has been reported by a number of studies that depression is linked to higher mortality and healthcare utilisation rates after transplantation (Zimbrean, 2022). According to a study by Tsunoda et al. (2010), depression affects 41.4% of kidney transplant recipients, and depressed patients were significantly more likely to be unemployed, want a kidney transplant, have had a rejection episode, and live alone. Mostly psychosocial issues are found to create depression among kidney transplant patients which may include social risk factors like financial difficulties, unemployment, personal life and relationship problems.

Factors associated with depression in kidney transplant patients

According to Chilcot et al. (2014), depression in kidney transplant recipients is linked to a multitude of clinical, social, and psychological aspects. Prior to renal transplant, patients have high

expectations of the operation. After the transplant procedure, however, many are dissatisfied with the numerous new obstacles they must face, including side effects, difficult immunosuppressive drug regimens, the risk of infection and rejection, the financial load on the family, and side effects (Lin et al., 2016). The social activities of the patients get reduced greatly to much extent due to fear of cross-infection which influences depression among the kidney transplant patients. Depressed individuals typically feel frustrated and self-pity (Lin et al., 2016). Immunosuppressive drugs gradually induce side effects, such as changes in appearance and size, diabetes, high blood pressure, and so on, which may make recipients feel depressed (Lin et al., 2016). Long-term use or overdose of immunosuppressive drugs weakens their immune function, whereas inadequate dosing may lead to chronic rejection; both scenarios threaten their health which influences depression (Anvar-Abnavi et al., 2010). A study also showed employment status as a major factor influencing the depression of kidney transplant recipients (Lin et al., 2016). Economic strain is another important element that affects depression in recipients that increases the likelihood that recipients will develop a depressive disorder and experience severe depressive symptoms (Lin et al., 2016). Since the follow-up clinics are located in the capital cities, it is inconvenient for rural residents to travel to the city for follow-up examinations and medical treatment, which is why the location of kidney transplant recipients' homes is related to depression (Lin et al., 2016). Additionally, in rural areas recipients find it difficult to cope with heavier economic burdens.

Clinical Outcome

Researchers from various studies showed that depression leads to increased morbidity in kidney transplant recipients (Kimmel et al., 2000; Cukor et al., 2009). Depression is also associated with a twofold greater risk of graft failure and death (Dobbels et al., 2008). According to new research by Reuters Health (2008), depression increases the risk of death, returning to dialysis therapy, and renal failure. Depressive disorders are characterized how the psychiatric problems influences the patient’s quality of life, disease progression, hospitalizations, and mortality (Zalai et al., 2012). Presence of depression was associated with worse graft function and also reported that patients with moderate-to-severe depressive symptoms had an increased risk for chronic allograft nephropathy, return to dialysis or death (Rocha et al., 2001; Akman et al., 2003). The mechanism by which depression increases the overall risk of death is by both ‘‘unnatural’’ causes and other medical conditions, especially cardiovascular disease (Zalai et al., 2012). More indirectly, poor

social support and social isolation may contribute to higher mortality among those suffering from depression (Cohen et al., 2007). Physical activity is also strongly associated with depression. Depression can negatively influence lifestyle behaviors like physical activity, which would add to risk consequences of low physical activity that is already present in kidney transplant patients (Zelle et al., 2011). Several chronic illnesses are associated with psychiatric comorbidity. A prospective cohort study showed that depressive symptoms were not significantly associated with medical outcomes and depression may affect the disease process and graft survival (Fukunishi et al., 2002; Corruble et al., 2011; Wang et al., 2020; De Pasquale et al., 2020). Depressive mood can reduce the patient's adherence to medication and hospital visits and can discourage patients from modifying their lifestyle (Cho et al., 2022).

Preventive Measures

Kidney transplantation is a severe and life-changing procedure, and both the patient and the patient's family should be aware of both the surgical risks and the long-term compliance required to improve patient outcomes (NRHSP, 2007). A psychological evaluation is required before placing a patient on the transplant list, according to the United Network for Organ Sharing (UNOS). To maintain a successful surgical outcome, the psychosocial evaluation is used to evaluate the patient's comprehension of the procedure itself as well as their acceptance of these requirements (NRHSP, 2007).

According to a research by Chilcot et al. (2014) depression is a common and expensive comorbidity in kidney transplant patients, it is essential to identify signs and take action with the right medications. Among recipients of renal transplants Individual and group psychotherapy for 12 weeks has been found to lessen depressive symptoms (Chilcot et al., 2014). Antidepressant treatment for depression in renal transplant recipients must take into account their varied demographics, range of baseline renal function comorbidities, and immunosuppressive regimens (Chilcot et al., 2014). Although the use of gastro-protective agents should be used with caution, renal graft recipients already have a theoretically increased risk of gastrointestinal bleeding due to the use of antiplatelet agents, immunosuppressant's like steroids, and impaired platelet function in renal impairment (Palmer et al., 2012; Gansevoort et al., 2013). In addition, the psychosocial evaluation usually includes an assessment of the support person who will be the primary caregiver for the transplant patient after the surgery (Chilcot et al., 2014).

Conclusion

Although kidney transplantation has advanced, it is still common for patients to experience depression, which is associated with a poor clinical result and graft failure. However, depression is treatable with help and empathy, and early detection and treatment of individuals who are exhibiting its symptoms can significantly enhance the quality of life and restore more regular functioning in everyday activities. Patients should talk to a close friend or family member about any psychological concerns they may have. Treating depression by seeing a psychotherapist in conjunction with their medical professionals will help kidney transplant recipients battle and overcome their depressive disorders and lead healthy lives.

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