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# STUDY OF THE OUTCOME OF PATIENTS REGISTERED FOR KIDNEY TRANSPLANT AT SKIMS, A TERTIARY CARE TEACHING HOSPITAL OF NORTH INDIA

**G. H. Yatoo*[1], Ghazala[2], Mohd Ashraf Bhat[3] and Haroon Rashid[4]**

[1]Department of Hospital Administration, SKIMS, Soura.
[2]JK Health Department, SKIMS, Soura.
[3]Department of Nephrology, SKIMS, Soura.
[4]Department of Hospital Administration, SKIMS, Soura.

***Corresponding Author: G. H. Yatoo**

Department of Hospital Administration, SKIMS, Soura.

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## ABSTRACT

**Introduction:** Chronic kidney disease is increasingly recognized as a global public health problem. **Aim:** The study was conducted to find out the outcome of patients undergoing kidney Transplant Surgery at SKIMS. **Methods:** The outcome was studied by following two groups of patients retrospectively and prospectively and mortality and morbidity factors were noted. **Results:** The outcome after kidney transplantation was studied in two groups it was observed in retrospective group normal functioning graft was present 73.25% cases in while as in prospective group it was found in 82.85% cases. The mortality rate following transplant was found to be 11.6 % in retrospective group. **Discussion:** Kidney Transplantation in Treatment for ESRD Kidney transplantation improves long-term survival compared to maintenance dialysis.

## INTRODUCTION

Chronic kidney disease is increasingly recognized as a global public health problem. Chronic kidney disease prevalence among the poor is 2-to-3-fold higher than the general population, and the etiology is unknown in 30% of end stage renal disease patients. Poverty-related factors such as infectious disease secondary to poor sanitation, inadequate supply of safe water, environment pollutants and high concentrations of disease-transmitting vectors continue to play an important role in the development of chronic kidney disease in low-income countries.[1,2]

World Health Organisation has identified kidney diseases as 12th and 17th major cause of death and disability worldwide, respectively. A recent study estimated that age-adjusted incidence rate of CKD in India is 229 per million populations, and more than 100,000 new patients enter renal replacement program every year in India. There are multiple causes of CKD with diabetes, hypertension and chronic glomerulonephritis among the most common causes. All of these causes gradually lead to the final common pathway of End stage renal disease (ESRD), and this syndrome is characterized by hypertension, anemia, renal bone disease, impaired quality of life, and reduced life expectancy.[3]

The Place of Kidney Transplantation in Treatment for ESRD Kidney transplantation improves long-term survival compared to maintenance dialysis. In 46,164 patients on the transplant waiting list in the USA between1991–1997, mortality was 68% lower for transplant recipients than for those remaining on the transplant waiting list after 1 3 years follow-up. The transplanted 20–39 years old patients of both sexes were predicted to live 17 years longer than those remaining on the transplant waiting list, an effect that was even more marked in diabetics.[4]

Successful kidney transplant offers the best possible quality of life for patients with End stage renal disease. Despite this, renal transplantation rates in the developing world are considerably lower than in the developed world and the identified reasons for this include lack of awareness, low education level, lack of clear national policy; absence of functional dialysis and transplant units with adequately trained staff and absence of an organized system of organ retrieval from deceased donors and lack of opportunities to find long term immunosuppression.[5]

Ever increasing rise number of CKD and ESRD cases and emergence of renal transplant have changed the view regarding the kidney diseases. Keeping present study was carried out to find out the outcome of transplantation in Sher-i-Kashmir institute of medical sciences (SKIMS) which is a tertiary care hospital in North India with a bed strength of about 800.

## AIM AND OBJECTIVE

To Study of the outcome of patients registered for kidney transplant at SKIMS.

## MATERIAL AND METHODS

**The study was conducted in two parts**

**Study Setting:** Kidney Transplant Unit (KTU) of SKIMS

**Study Design**

a) Retrospective Study
b) Prospective Study

**Study Sampling**

**a) Retrospective Study:** All patients who underwent kidney transplant in Skims from 1st Aug 2015 till 30th Aug 2017 were Studied for their outcome retrospectively.

**b) Prospective Study:** All patients whose kidney transplantation was carried out in SKIMS from Ist January 2018 to 31 December 2018(period of 1 year) were studied. Patients operated were followed for another six months for outcome.

**Inclusion Criteria**

1. All end stage renal disease patients where plan of kidney transplantation was made and live donor was available.

**Exclusion Criteria**

1. Patients who died during the course before transplantation.
2. Patients who after diagnosis refused to undergo kidney transplant.

**Study Tool: Retrospective Patients**

Outcome was studied by checking their medical record files and by Accessing kidney transplant unit database at SKIMS. These patients were located by contacting them on their Mobile numbers and asking them/relatives about the outcome.

**Prospective Patients:** For Prospective outcome of transplanted patients, an Observational study was carried out among operated Transplanted patients during the study period. Patients operated were followed for a period of 6 months and immediate or long term Complications were entered on a predesigned proforma.

**Duration of study:** Retrospective Study: 2 Years
Prospective Study : 1 year and follow up 6 months

**Statistical Analysis**

The data collected was entered on MS excel. Descriptive and analytical statitstics was used. Data was analysed by SPSS 2.0.The Chi square test and other tests of significance (ANNOVA,T test) were used wherever needed. The results obtained were represented in the form of graphs and tables.

## RESULTS AND OBSERVATIONS

**The study was conducted in two parts.**

**Part 1.**

**Retrospective Patients:** Outcome was studied by checking their medical record files and by Accessing kidney transplant unit database at SKIMS. These patients were located by contacting them on their mobile numbers and asking them about the outcome**.**

The patients who underwent kidney transplantation at SKIMS from 1st August, 2015 to 31 July, 2017 were studied.

**A total of 86 patients were followed for this part of study.**

**Table 1: Showing outcome in Retrospectively studied Renal transplant patients.**

| Outcome | Frequency | Percentage |
|---|---|---|
| Normal functioning graft | 60 | 69.76% |
| Acute rejection | 1 | 1.16% |
| Graft Thrombosis | 2 | 2.32% |
| Chronic allograft Nephropathy | 1 | 1.16% |
| Surgical problems | 2 | 2.32% |
| Infection | 9 | 10.47% |
| Recurrent disease | 1 | 1.16% |
| Death | 10 | 11.6% |
| Total | 86 | 100.0% |

**It was observed that during the study period ten patients had died while 73.25 of the patients had normal functioning graft**

**Part 2: Prospective Patients:** For Prospective outcome of transplanted patients, an Observational study was carried out among operated Transplanted patients during the study period. Patients operated were followed for a period of 6 months and immediate or long term Complications were entered on a predesigned proforma. The patients who had undergone kidney transplantation from 1st January 2018 to 31st December 2018 were studied. The cases were followed for next six months for outcome.

**A total of 35 transplant cases were studied.**

**Table 2: Showing outcome in Prospectively studied Renal transplant patients.**

| Outcome | Frequency | Percentage |
|---|---|---|
| Normal functioning graft | 25 | 71.42% |
| Acute rejection | 0 | 0.00% |
| Graft Thrombosis | 1 | 2.85% |
| Chronic allograft Nephropathy | 0 | 0.00 |
| Surgical problems | 2 | 5.71% |
| Infection | 7 | 20.0% |
| Recurrent disease | 0 | 0.00% |
| Death | 0 | 0.00% |
| Total | 35 | 100.0% |

## DISCUSSION

CKD, with its high prevalence, morbidity and mortality, is an important public health problem. With, 3% of land mass, India hosts 17% of the Earth's population. Large numbers of patients below the poverty line, low gross domestic product, and low monetary allocations for health care have led to suboptimal outcomes. Moreover, CKD and other non communicable diseases have often been ignored in the face of persistent challenges from and competition for resources for communicable diseases and high infant and maternal mortality.[6]

Several issues contribute to high prevalence of CKD in India. United Nations Children's Emergency Fund data show that 28% of children are, 2.5 kg at birth. Hypovitaminosis A and other nutritional issues during pregnancy may cause smaller kidney volume at birth and a lower eGFR. Consanguinity and genetic inbreeding increase risk of congenital anomalies of the kidney and urinary tract and obstructive or reflux nephropathy. Poverty, poor sanitation, pollutants, water contamination, overcrowding, and known and unknown nephrotoxins (including heavy metals and plant toxins in indigenous remedies) may lead to glomerular and interstitial kidney diseases. Added to these exposures are the growing burden of hypertension and diabetes mellitus.[7]

Kidney transplantation is acknowledged as a major advance of modern medicine which provides high-quality life years to patients with irreversible kidney failure (end-stage renal disease, ESRD) worldwide. The largest numbers of transplants are performed in the USA, China, Brazil and India, while the greatest population access to transplantation is in Austria, USA, Croatia, Norway, Portugal and Spain. There are still many limitations in access to transplantation across the globe.[8]

Kidney transplantation is associated with improved survival compared with maintenance dialysis.

**Outcome of patients after kidney transplantation was studied in two parts.**

**Part 1.**

**Retrospective Patients**

A total of 86 patients were followed for this part of study.63 patients (73.25%) had normal functioning graft while as the ten(11.6%) patients had died during the course of time after transplanation.

**Part 2: Prospective Patients**

A total of 35 transplant cases were studied. Out of which 29(82.25%) had normal functioning graft, 1(2.85%) had graft thrombosis, 3(6.97%) had developed some infections while as 2(5.71%) patients had surgical problems.

The study findings are similar to the findings of F Reyna et al[9] who observed graft survival at one year was 82.4% with a 91% percent patient survival. The surgical complications in our study group were comparatively lower (5.71%) as compared to the study of F reyna et al.[9]

Our study also found lower rate of complication in our patients as compared to study of Max a Levine et al [10] where a higher grade 1 and grade 2 complications after transplantation were noted.

The study observed a mortality rate of 11.6 % in retrospective group which is similar to the findings obtained by Paula Rebella Bichalho et al.[11]

Ojo and colleagues[12] found that the adjusted 10-year patient survival after deceased donor kidney transplant was 86% in Spain and 67% in the United States (P, .001) and that the hazard ratio (HR) for death was 2.35 in the United States compared with Spain.

Kim and associates[13] compared US and Canadian kidney transplant recipients from 1991 to 1998 and found that although there was no statistically significant difference in mortality between the 2 countries in the first-year post-transplant (HR 1.09, P ¼.30), a difference developed for years 2 through 8 (covariate adjusted HR 1.53, P,.005). Using the Collaborative Transplant Study database, Gondos and others[14] showed that 5- and 10-year unadjusted deceased donor allograft survival rates were superior in Europe (77.0% and 56.5%, respectively) compared with the United States across all age and ethnic groups, and the difference was magnified in black recipients (white recipients, 71.3% and 45.7%; black recipients, 62.5% and 33.7%). The pattern was similar for living donor transplants.

Differences in deceased donor allocation are another potential explanation for the difference in long-term outcomes. The Eurotransplant Senior Program (ESP) was launched in 1999 in an attempt to improve longevity matching of deceased donor organs and reduce discard rates of organs from elderly donors, while maintaining adequate allograft and patient survival. Under this allocation scheme, organs from donors aged 65 years or older are allocated to local recipients aged 65 years or older. Frei and colleagues showed that the number of elderly donors increased and waiting time for elderly recipients decreased. Five-year patient and allograft survival were similar under ESP allocation and under the regular policy except for slightly higher rates of acute rejection. A primary benefit of the ESP is that it reduces the transplantation of older kidneys into younger recipients, which has been associated with the worst outcomes.[15.16]

## SUMMARY

Chronic kidney disease is increasingly recognized as a global public health problem. The Place of Kidney Transplantation in Treatment for ESRD Kidney transplantation improves long-term survival compared to maintenance dialysis. The majority of patients commencing dialysis for ESRD in low income countries die or stop treatment within the first 3 months of

initiating dialysis due to cost restraints. The outcome after kidney transplantation was studied in two groups it was observed in retrospective group normal functioning graft was present 73.25% cases in while as in prospective group it was found in 82.85% cases. The mortality rate following transplant was found to be 11.6 % in retrospective group.

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