Introduction

Cadaveric renal transplant is a rare procedure. Renal recipient knowledge regarding post-transplant aspect is essential in terms of managing with short-term problems imposed by transplantation and the long-term outcome. This requires patient education programs that prepare patients and renal rehabilitation program that makes the patient to gain the functional independence to the greatest degree possible after returning back to daily activity with a new kidney [1]. The common manifestations related to renal transplantation are pain, difficulty in breathing, restriction in chest expansion and reduction in functional mobility. Manifestations related to cardio-vascular system are dysfunctional breathing. Aim of this single case study is to explore the post renal transplantation consequences and to highlight the need for renal rehabilitation program.

Case Report

A 30 year old male child reported to SRM Medical College, Physiotherapy Department with complaints of difficulty in breathing, sitting, standing and independently walking. As clinical manifestations of post transplantation are wide, it leads to multidisciplinary approaches. Physiotherapy treatment protocol is important for early diagnosis of co morbidity and to provide initiation to renal rehabilitation program.

Renal Rehabilitation

Transplantation of Human Organs is one of the biggest medical breakthroughs of India. It has been initiated in the early 1970s. But, only relatively few Indian patients are benefitted from this medical advancement. Prevalence rate of CKD is increasingly common in this century, in India over 2, 22,000 people are diagnosed with End stage –GRADE V CKD, they were in need of renal transplantation and the majority of these patients are young, only through organ transplantation they can fulfill their hope to survive. Many patients lose their life mainly due to no availability of organs [2-4]. Even though the renal transplant procedure is becoming common, the co-morbidities faced by the individual in the post-transplant period is left unnoticed and there is no standardized treatment approach.
to deal with their kidneys at the post-operative period. In this single case study renal rehabilitation program has been initiated for the recipient of cadaveric kidney transplantation, his parents were accepted for cadaveric transplant according to their priority on the waiting list maintained at the University.

Renal rehabilitation is initiated on the day 0 on the day of transplant with breathing exercises; bed mobility exercise and sitting up in bed were done. On day 1- patient has been made to sit in a chair for four hours and asked to perform day 0 rehabilitation exercises. On day 2- he has been asked to transfer out of bed and made to sit in chair for at least eight hours in total, here the recipient has completed 2 short walks around the bed with oxygen support. On day 3- patient has been made to sit out of bed for most of the day and instructions were given to increase the distance and frequency of walks in a day, on day 4- primary emphasis has been given to walking without assistance and the total distance covered has to be increased, here the patients RPE should be assessed simultaneously. Based on the individual differences in outcome the post-operative treatment protocol used in renal rehabilitation can be varied [5-6]. Breathing exercises will help to re-expand lungs and helps to clear phlegm from the airways and therefore reduce the risk of chest infections. The patient has been asked to take four slow breaths and asked to maintain the holding time till 5 seconds and he has been advised to repeat the exercise every hour during the day. He is advised to practice this whenever he has the episodes of dyspnoea while walking. This patient had complaints of copious amount of purulent sputum production on day 2 following the post renal transplant and coughing was often be uncomfortable, but he has been asked to hold a rolled up towel or pillow against incision to provide some support [7].

He has been asked to practice bed mobility exercises three times a day, this will improve circulation and he was advised to sit upright in the bed as much as possible during the day to help prevent other complications. on day 0 of post-transplant procedure he is given instructions to perform Ankle pumps for one minute, alternate knee bends 15 times on each side. Straightening knee with a straight leg, he has been asked to push his knee down into the bed. He has been asked to Hold this for 5 seconds and repeat 15 times on each side. Leg raises –lift one leg up straight in the air, keeping your knee straight. Hold it up off the bed for five seconds and repeat 15 times on each side [8-10]. Renal Rehabilitation is a 12 week programme designed to help people with renal disease to start exercising regularly. This is a twice-weekly, hour long class involving a variety of exercises aimed at different ability levels, to find the individual differences in exercising ability, exercise dairy has been given to him.

**Data Analysis**

To analyze the beneficial effects of renal rehabilitation on post-transplant period, 6MWT and RPE scale has been used to monitor the treatment effects. After 6 weeks of renal rehabilitation, 6MWT has significant improvement and functional activity has been increased with marked reduction in RPE scale on compared to baseline (Tables 1-4) and (Figure 1).

**Table 1**: 6mwt Distance at Basline And At 6th Week.

| S.No | 6MWT Distance in Meters - Baseline | 2nd week | 4th week | 6th week |
|------|------------------------------------|---------|---------|---------|
| 1    | 5                                  | 9       | 15      | 35      |

**Table 2**: Rate of Perceived Exertion at Baseline Walking Performance and At 6th Week.

| S.No | RPE- Baseline | 2nd week | 4th week | 6th week |
|------|--------------|---------|---------|---------|
| 1    | 10           | 6       | 3       | 0       |

**Table 3**.

| Descriptive Statistics | Mean    | Std. Deviation | N |
|------------------------|---------|----------------|---|
| 6MWT                   | 16      | 13.317         | 4 |
| RPE                    | 4.75    | 4.272          | 4 |

**Table 4**.

| Correlations          | 6MWT | RPE |
|-----------------------|------|-----|
| 6MWT                  | 1    | -0.908 |
| Sig. (2-tailed)       |      | 0.092 |
| N                     | 4    | 4   |
| RPE                   | -0.908 | 1   |
| Sig. (2-tailed)       | 0.092 |      |
| N                     | 4    | 4   |

**Discussion**

As cardio-respiratory and musculoskeletal dysfunction is common on the post transplantation period, there is a need for introducing the renal rehabilitation programme for the maintenance of functional capacity in this patient population. They are prone for reduction in functional exercise capacity as there is...
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