IMPACT OF RENAL TRANSPLANTATION ON ERECTILE DYSFUNCTION DUE TO CHRONIC RENAL FAILURE IN MALE PATIENTS

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Background: Erectile dysfunction can be defined as the persistent inability of man to achieve penile erection and maintain it sufficient for satisfactory coitus. The objectives of this study were to find out the impact of successful renal transplantation on the degree and frequency of erectile dysfunction. **Methods:** Thirty patients of end stage renal disease that were on regular haemodialysis and candidates of renal transplantation of age range 20–55 years were included in the study after getting informed consent. Erectile functions were assessed by history, examination, investigations and international index of erectile function (IIEF) before and 3 and 6 months after renal transplantation, other information regarding disease and patient were collected in the performa. **Results:** Out of thirty patients 14 (46.6%) patients had sever erectile dysfunction while 16 (53.3%) patients had moderate erectile dysfunction in the pre renal transplantation period. After three months of renal transplantation 15 (50%) had severe erectile dysfunction, 6 (20%) patients moderate erectile dysfunction and 9 (30%) patients mild erectile dysfunction. After six months 11 (36.6%), 10 (33.3%) and 8 (26.6%) patients had severe, moderate and mild erectile dysfunction respectively. **Conclusion:** There was improvement in 40%, no change in 53.3% and deterioration in 6.6% patients in the erectile functions after getting renal transplantation for end stage renal disease.

Keywords: Erectile Dysfunction, End-stage Renal Disease, International Index of Erectile Function, IIEF

INTRODUCTION

Erectile dysfunction (ED) can be defined as the persistent inability of man to achieve penile erection and maintain it sufficient for satisfactory coitus.[1]

Erection is coordinated physiological process involving both central and peripheral nervous system. Vasodilatation and relaxation of smooth muscles layer in the corpora is caused by parasympathetic impulses leading to rushing of blood into it. This causes ballooning of the erectile tissue.[2]

Erectile dysfunction can not be attributed to a single cause but rather as a result of multi system disease, psychological factors and chronic illness.[3]

End stage renal disease is one of the chronic illnesses causing erectile dysfunction by organic diseases (neuro-endocrine disturbances, uraemia, anaemia and atherosclerosis), psychogenic factors (depression, anxiety) and the medications used for the treatment of diseases associated with chronic renal failure such as antihypertensive drugs, immunosuppressant, H_2 blockers etc. It is known that approximately 25% of patients on dialysis are mentally depressed at any given time contributing in the erectile dysfunction due to end stage renal disease patients on regular hemodiaysis.[1,4]

Renal transplantation is one of the renal replacement therapies in end stage renal disease widely used nowadays. About 40,000 renal transplants have been performed since 1936. With improving therapies and procedures, the total number of renal transplants has increased.[5]

The ability of patients to regain normal quality of life following renal transplantation has significantly increased now days.[1]

MATERIAL AND METHODS

The study was carried out of 30 patients with end stage renal disease, on regular haemodialysis and was candidates for renal transplantation. All the patients were married and having no history of neurovascular injury or trauma to sex organs. All these patients were psychologically fit using general health questionnaire-12 and having no congenital abnormality of sex organs. Erectile functions were evaluated by history general physical examination investigations and international index of erectile function-5 during the period of haemodialysis before renal transplantation. International index of erectile function is used to determine the presence of erectile dysfunction. It gives the degree of erection (Severe erectile dysfunction; 5–7, Moderate erectile dysfunction; 8–11, Mild erectile dysfunction; 12–16, Moderately mild erectile dysfunction; 17–21, NO erectile dysfunction; 22–25).[6,7]

After successful renal transplantation these patients were reassessed for erectile dysfunction at 3 and 6 months.

Data was entered into computer using SPSS 10.00 used for analysis. Data was described in terms of frequency and percentages in case of categorical variable and Mean±SD for continuous variables. Student's *t*-test was used for continuous data and Chi square for categorical data. A level of 5% was taken as significant.

RESULTS

In this study 30 patients were included. The age range was 20–55 years with the mean age 39±7.35 years. The number of patients in the 3rd decade were 7 (23.3%), 4th decade 11 (35.7%0 5th decade 10 (33.3%) and 6th decade 2 (6.7%). The observed causes and their frequencies of ESRD are shown in Table-1.

Table-1: Causes of ESRD (n=30)

Disease	Number	Percentage
Only Hypertension	11	36.6
Only Diabetes Mellitus	10	33.3
Both Hypertension & D.M.	3	10
Drugs	3	10
Glumerulonephritis	2	6.6
Calculus Disease	1	3.3

In this study 27 (90%) patients out of 30 had haemoglobin level less than 10 gm/dl and 3 (10%) patients had haemoglobin 10–12 gm/dl before renal transplantation. The mean haemoglobin was (8.48± 1.13) gm/dl before renal transplantation. After 3 months, 1 (3.3%) patient had haemoglobin less than 10 gm /dl and 29 (97.7%) patients had haemoglobin in range of 10–12 gm/dl. The mean haemoglobin was 11.75±0.97 gm/dl. After 6 months of renal transplantation 12 (40%) and 18 (60%) patients had 10–12 gm/dl and 13–15 gm/dl respectively. The mean haemoglobin was (12.93±0.65) gm/dl (Figure-1).

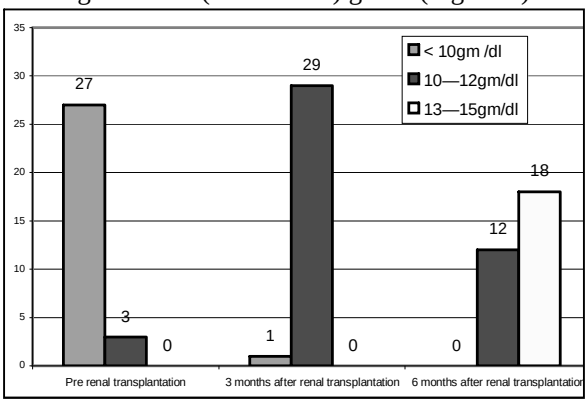

Figure-1: Haemoglobin level pre and post renal transplantation (n=30)

In this study 6 (20%) patients had serum testosterone level in the range of 0.0–3.0 ηg/ml, 14 (46.6%) and 10 (33.3%) patients had serum testosterone levels ranging 3.10–6.00 ηg/ml and 6.10–12 ηg/ml respectively before renal transplantation. After 3months of renal transplantation 4 (13.3%), 16 (53.3%) and 10 (33.3%) patients had 3.10–6.00 ηg/ml and 6.10–12 ηg/ml respectively. After 6 months of renal transplantation 2 (6.6%), 10 (33.3%) and 18 (60%) patients had 3.10–6.00 ηg/ml and 6.10–12 ηg/ml respectively. There is no significant impact of haemoglobin level and serum testosterone on erectile dysfunction in patients after renal transplantation. (Figure-2)

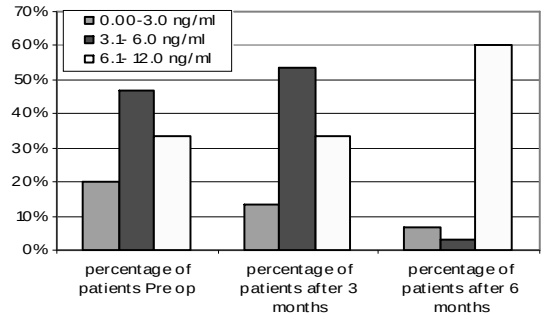

Figure-2: Serum testosterone level pre and post renal transplantation

The study showed that all 30 patients had erectile dysfunction with difference in severity. In pre renal transplantation period 14 (46.6%) patients had severe erectile dysfunction and 16 (53.3%) patients were having moderate erectile dysfunction. There was no patient who had mild or moderately mild erectile dysfunction in the pre renal transplantation period. After three months of renal transplantation 15 (50%) patients had severe erectile dysfunction; 6 (20%) patients had moderate erectile dysfunction; 9 (30%) patients had mild erectile dysfunction. After six months of renal transplantation 11 (36.6%) patients had severe erectile dysfunction; 10 (33.3%) patients had moderate; 8 (26.6%) patients had mild and 1 (3.3%) patients had moderately mild erectile dysfunction.

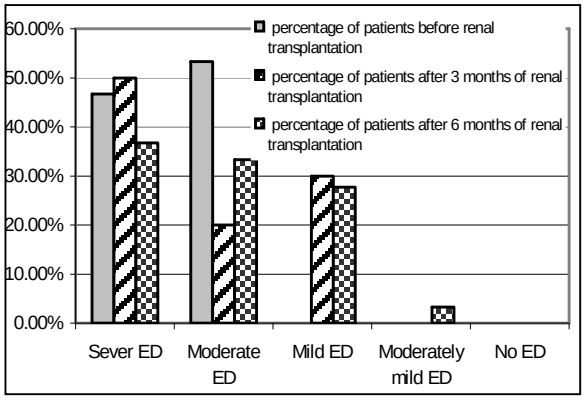

Figure-3: Frequency and severity of ED pre and post renal transplantation (3, 6 months follow-up) (n=30)

At 6 month follow up ED improved in 5 and 6 patients while 9 and 10 patient ED did not improved in patients above and below mean age 39years respectively. Erectile dysfunction improved in 11 patients but not improved in 19 patients at 6 month in respect of haemoglobin. At 6 month follow up ED improved in 10 and 1 patients while 13 and 9 patients ED did not improved in patients above and below mean serum testosterone 6.33ng/ml respectively see Table-2.

Table-2: Impact of age, haemoglobin and serum testosterone on erectile dysfunction after renal transplantation

		Erectile dysfunction improved	Erectile dysfunction not improved	*p*-value
Age (mean age=(39 yrs)	Above mean	5	9	0.023
	Below mean	6	10	
Haemoglobin		11	19	0.862
Serum testosterone (6.33 ηg/ml)	Above mean	10	13	0.218
	Below mean	1	6	

DISCUSSION

In this study all patients with end stage renal disease had some degree of erectile dysfunction during regular haemodialysis before renal transplantation. Out of these 46.6% patients had severe erectile dysfunction while 54.4% had moderate erectile dysfunction. A study conducted by Zamad *et al* showed that 81.4% patients had reduced erectile function or even absent sexual activity during chronic haemodialysis. Another study done by Ali *et al* on 75 patients revealed that erectile dysfunction was present in 82.5% patients during haemodialysis.[8,9] There is significant difference between our observed results and the international studies. This difference may be due to that the small sample size as compared to other studies and also in our social setup patients with end stage renal disease give less attention to sexual performance.

In this study the major causes of end stage renal disease were diabetes mellitus, hypertension. It was observed that 36.6% patients had hypertension, 33.3% patients had diabetes mellitus and 10% patients were having both diabetes mellitus and hypertension in the same individual. Lue *et al* has mentioned this that above 70% of en stage renal disease is caused by diabetes mellitus or hypertension.[5] Our results are comparable with these results.

In our study it was observed that 40% patients had improved erectile functions 53.3% patients erectile functions remained static, and 6.6% patients presented with deteriorated erectile functions after renal transplantation for end stage renal disease. Study performed by Musan *et al* showed that erectile functions improved in 32.5% disappeared in 20%, static in 42.5% and worsened in 5%.[10] In another study done by Bahansway *et al* showed that erectile functions improved in 43.5%, deteriorated in 12.5% and remained static in 44% of patients after successful renal transplantation.[11] The study of Burgos PJ *et al* showed that the presence of erectile dysfunction in pre transplant stage of end stage renal disease and during haemodialysis was 92% and 50% of the patients after renal transplantation.[12] There is no significant difference between the international studies and observed results.

The impact of age, haemoglobin and serum testosterone observed in the study at 6 months showing that age has significant negative correlation in the improvement of ED while Hb and serum testosterone has no positive impact on the erectile dysfunction. The same was observed by Bahnsawy *et al* and Burgos *et al*.

CONCLUSION

Erectile dysfunction is present in almost all patients of chronic renal failure. There is significant improvement in erectile functions of the patients with end stage renal disease treated by renal transplantation.

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