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Incidence and Neurological Complications in Renal Transplant Patients

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ABSTRACT

Objective-Neurologic complications are frequent (30% -60%) in patients with end stage renal disease who have undergone renal transplant. There are very few longitudinal studies showing the effect neurologic problems have on the survival and quality of life in renal transplant recipients. This study sought to review the incidence and classify these complications. *Methods*- Patients of renal transplant (n=25) presenting to the renal transplant unit of a teaching tertiary care hospital were included in this study. A written informed consent was taken from all patients. Medical records and history were reviewed .Neurological assessment was done. Mental state was assessed based on a simple standardised questionnaire. *Results*-Out of the 25 patients examined, 23 (92%) were men and 2(8%) were women. The mean age of the recipients was 35±5 years (range 14-65 years). There were 11(44%) who had neurologic complications. Dementia was the commonest present in 3(12%) of our patients post transplant. Encephalopathy was observed in 3(12%) of our patients .Headache was present in 1 (4%) of our patients pre transplant. *Conclusion*-Neurologic complications are common after renal transplant and are mainly associated with immunosuppressive medication.

Keywords: Renal failure, immunosuppressants, neurotoxicity, neurologic complications, organ transplant.

Introduction

Renal transplant surgeries have become the best therapy for most patients with end stage renal disease. The five year patient survival rate has reached almost 90% in many centres today. However , with increased survival , new diseases in the recipients are occurring and among these neurological disorders are not infrequent[1].Some neurological complications are caused by the inherent disorders that led to transplantation and / or by dialysis .The post transplant neurological complications are mainly due to the immunosuppressive therapy which may increase the risk of opportunistic infections and neurotoxicity . These complications constitute a serious concern for the morbidity and mortality of the recipients. The aim of the present study was to review the neurological complications in renal transplant patients.

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This study was approved by the institutional ethics committee.

Material and methods

The study was conducted on patients of end stage renal disease who presented to the renal transplant unit of a tertiary care teaching hospital. Twenty five patients with end stage renal disease due to varying etiologies were included in the study. A written informed consent was taken from all the patients. The assessment methods were explained in detail to the patients' .A complete neurological assessment was done and a proforma was filled. A detailed mental examination was performed to assess any psychiatric abnormality. This was a simple questionnaire based on daily activities. The record section of our hospital keeps a computerised record of all renal transplant patients. The charts and records of all these patients were reviewed and incidence of complications recorded and comparison of complications was done pre-transplant and post-transplant. The data obtained was statistically analysed.

Results

Twenty five patients with end stage renal disease who had undergone successful renal transplant were included in the study .The demographic data of these patients are shown in table I .23 (92%) of the patients were males and 2 (8%) were females. Mean age of the recipients was 35 ±5 years range (14 – 65 years).

Table 1: Age Distribution

S.NO.	AGE GROUP (yrs)	NO.	PERCENTAGE
1	0-20	1	8.00
2	21-30	10	40.00
3	31-40	5	20.00
4	41-50	2	8.00
5	51-60	5	20.00
6	61-70	1	4.00
Total		25	

Table II shows etiologies of end stage renal disease. The commonest cause was hypertension in 18 (72%) of the patients. It was followed by diabetic nephropathy in 4 (16%) of the patients and 3 (12%) had glomerulonephritis.

Table 2: Etiologies of end stage renal disease

S.NO	Etiology	No.	Percentage
1	Diabetic nephropathy	4	16.00
2	Hypertension	18	72.00
3	Glomerulonephritis	3	12.00
Total		25	

Table III shows incidence of neurological complications. These were present in 11 (44%) of our patients and absent in 14 (56%) of the patients.

Table 3: Incidence of neurological complications

S.NO	Neurological complications	No	Percentage
1	Present	11	44.00
2	Absent	14	56.00
Total		25	

Table IV shows categorisation of neurological complications. Headache was present in 1 (4%) of our patients before the transplant but was not reported post transplant. Seizures were present in 2(8%) of the patients pre transplant .Tremors were reported in 1(4%) of the patients post transplant. Dementia was documented in 1(4%) of patients pre transplant and was also seen post transplant in 3 (12%) patients. Neuropathy was seen in 6(24%) of the patients post transplant and encephalopathy was characterized by confusion and loss of memory in 3 (12%) of our patients.

Table 4: Categotisation of neurological complications

S.NO:	Category	Pre-transplant		Post-transplant	
		Number	Percentage	Number	Percentage
1	Headache	1	4.00		

2	Seizures	2	8.00		
3	Tremors			1	4.00
4	Dementia	1	4.00	3	12.00
5	Encephalopathy			3	12.00
6	Mono/polyneuropathy			6	24.00

Discussion

Organ transplant recipients are at risk for a variety of complications including cerebrovascular insults, infections, electrolyte disturbances, hypertension, encephalopathy and toxicity induced by immunosuppressive agents [2-4]. Neurologic complications are frequent post transplant and may largely contribute to morbidity and mortality [5-7]. Post transplant headache is a recognised complication of organ transplant both in the form of a denovo headache or worsening of a known migraine [8-10]. In the present study, headache was present in one patient before the transplant. Post transplant headache was not documented.

Tremor is another common complication seen frequently after transplant. Some researchers found it to be present in 40% of their patients [11]. In our study only 1(4%) of the patients reported tremors. In most of the patients tremors is the result of immunosuppressive agents. However if severity of tremor is not significant and does not worsen the patient's quality of life then there is a tendency to ignore the symptom .Encephalopathy is a severe adverse effect of immunosuppressants. These patients may bpresent with a decreased level of consciousness, headache, dysarthria, depression, mania, cortical blindness, visual hallucinations and seizures [12]. In our study 3 (12%) patients had encephalopathy. Another common neurological complication reported was neuropathy. Similar reports were also documented in 2% patients who developed femoral neuropathy. In this study neuropathy was mild in 6(24%) of the patients. Seizures were reported frequently in renal transplant patients. [13,14]. The cause of these could be metabolic disturbances or drug toxicity. In our studies 2(8%) patients had seizures pre transplant.

Conclusion

The present study showed that neurologic complications after renal transplant are common. As more than half of the neurologic complications occur during first 3 months after transplant, a careful follow up including monitoring for these will decrease the morbidity and mortality in renal transplant recipients.

Conflict of interest

There is no conflict of interest to declare. This study was funded by the Indian council of medical research, New delhi under the STS programme.

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