Effect of improved periodontal health in renal recipients

Sir,

Dental and periodontal infections are considered risk factors for chronic kidney disease and can affect the successful outcome of renal transplantation. This prospective cohort study was undertaken to assess the effect of improved oral and periodontal status by nonsurgical periodontal therapy (NSPT) prior to renal transplantation in renal recipients. This study comprised 30 patients, posted for renal transplantation. They received NSPT prior to transplantation and were under triple drug therapy (tacrolimus,mycophenolate and corticosteroid). Systemic parameters (serum creatinine, serum albumin, IgM cytomegalovirus [CMV]), periodontal parameters (modified gingival index, plaque index, oral hygiene index, probing pocket depth [PPD], clinical attachment level [CAL]), gingival and oral mucosal changes before and six months after transplantation were assessed. Improved oral hygiene status was observed at re-evaluation. All periodontal parameters, except PPD and CAL showed significant improvement six months after renal transplantation whereas PPD (0.2 mm) and CAL (0.21 mm) increased significantly. IgM CMV was negative at baseline and six months after transplantation. Only 16.6% of the patients presented with gingival overgrowth and 13.3% with oral mucosal lesions six months after renal transplantation [Table 1].

Table 1: Comparison of oral and periodontal parameters at baseline and re-evaluation

Clinical parameters	Baseline	Re-evaluation	*P*
MGI	1.02±0.30	0.82±0.35	<0.001
PI	1.19±0.34	1.08±0.32	0.030
OHI (S)	1.98±0.96	0.82±0.47	<0.001
PPD	1.6±0.54	1.8±0.54	<0.001
CAL	1.65±0.56	1.86±0.56	<0.001
GR (distance from gingival margin to CEJ)	0.048±0.08	0.055±0.09	0.063
Gingival overgrowth (%)	0	16.6	0.025
Oral mucosal lesions (%)	0	13.3	0.046

Paired *t*-test was used for comparison of clinical parameters like MGI, PI, OHI (S), PPD, and CAL and Wilcoxon signed ranks test was used for comparing the presence of gingival overgrowth and oral mucosal lesions at baseline and reevaluation after renal replacement therapy. PPD: Probing pocket depth, CAL: Clinical attachment level, GR: Gingival recession, PI: Plaque index, OHI: Oral hygiene index, CEJ: Cemento-enamel junction, MGI: Modified gingival index

In this study, even though our patients were maintaining a good oral hygiene after periodontal therapy, PPD, CAL and gingival recession (GR) appeared to be increased six months after renal replacement therapy. Glucocorticoid is known to inhibit bone remodelling and stimulate osteoclast-mediated bone resorption.[1] So this increase in the PPD and CAL may be the effect of systemic administration of corticosteroids. Consistent with our study, Oshrain *et al*.[2] reported that the mean periodontal disease index and gingival index of the healthy individuals were lower than those of patients on dialysis and transplant recipients. Low incidence of gingival overgrowth and the mucosal lesion observed in our study group may be due to the effect of tacrolimus, nonsurgical periodontal treatment and maintenance of good oral hygiene. Renal transplant patients affected with periodontitis might be at risk of viral amplification within the periodontal pocket despite antiviral therapy.[3] Nonsurgical periodontal treatment and antiviral therapy decrease the chance of replication of virus.[4]

The mean difference in the pocket depth (0.2 mm) observed in this study cannot be ignored, because recolonization of pathogens can occur in the periodontal pocket within 60 days of scaling and root planning. Gram-negative anaerobic bacteria in the periodontal pocket can serve as a large reservoir and may act as foci for infections. Thus periodontal pathogen can potentiate bacteremia/viremia in immunosuppressed patients that may affect the survival of the transplant. Re-evaluation and maintenance phase of periodontal therapy may effectively reduce the number of pathogens colonized in the sub gingival biofilm and thereby reduce systemic dissemination. Maintenance phase of periodontal therapy is mandatory because recolonization of pathogens can occur in the periodontal pocket. In order to eliminate such covert source of inflammation and better graft survival, periodontal therapy should become a part of institutional protocol for renal transplantation.

R. Joseph, S. K. Anandan, S. Melemadathil[1]

Department of Periodontics, Government Dental College,
[1]Department of Nephrology and Hypertension,
Government Medical College, Calicut, Kerala, India

Address for correspondence:
Dr. Rosamma Joseph,
Department of Periodontics, Government Dental College,
Calicut - 673 008, Kerala, India.
E-mail: drrosammajoseph@gmail.com

References

1. Mitra R. Adverse effects of corticosteroids on bone metabolism: A review. PM R 2011;3:466-71.
2. Oshrain HI, Mender S, Mandel ID. Periodontal status of patients with reduced immunocapacity. J Periodontol 1979;50:185-8.
3. Nowzari H, Jorgensen MG, Aswad S, Khan N, Osorio E, Safarian A, *et al.* Human cytomegalovirus-associated periodontitis in renal transplant patients. Transplant Proc 2003;35:2949-52.
4. Chalabi M, Rezaie F, Moghim S, Mogharehabed A, Rezaei M, Mehraban B. Periodontopathic bacteria and herpes viruses in chronic periodontitis. Mol Oral Microbiol 2010;25:236-40.

Access this article online	
Quick Response Code:	Website: www.indianjnephrol.org
	DOI: 10.4103/0971-4065.153333