



Oral Health of Renal Transplant Patients in Hong Kong

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Introduction

The oral health of renal transplant patients in Hong Kong has been little studied.

It is known that the oral health of transplant patients is adversely affected by drugs such as cyclosporin A (CsA) and FK506 (a newly introduced immunosuppressant) which they routinely receive.

Objectives

- To compare the effect of CsA and FK506 on gingival overgrowth,
- To investigate the relationship of serum levels of CsA and FK506 with gingival overgrowth,
- To compare the effect of CsA and FK506 on the oral carriage rates of yeasts and coliforms,
- To investigate the effect of non-surgical periodontal treatment on gingival overgrowth.

In a cohort of renal transplant patients in Hong Kong.

Materials and Methods

A total of 47 patients receiving CsA and 10 receiving FK506 were recruited from the Renal Unit of the Queen Mary Hospital, Hong Kong. At the initial visit, patients chief dental complaint, history of renal transplant, medical and dental history were taken.

Clinical Examination

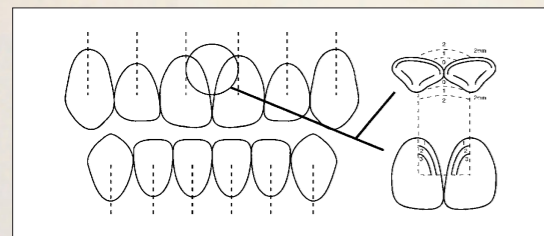
Decayed/Filled/Missing Teeth (DMFT) and Gingival Index (GI) were recorded by two calibrated examiners.

Oral Carriage Rates of Yeasts and Coliforms

Oral rinse samples (Samaranayake et al., 1986) were taken to determine the oral carriage rates of yeasts and coliforms in the cohort, which were isolated using Sabouraud's dextrose agar and MacConkey's agar, respectively. Yeasts thus isolated were then speciated using germ tube test and commercially available kit API 20C AUX. Coliforms were speciated using API 20E.

Gingival Overgrowth Index

Study models were taken for the measurement of Gingival Overgrowth Index (GOI) suggested by Seymour et al. (1991).



Schematic diagram showing the method of measurement and the application of GOI.

Periodontal Treatment Programme

All the patients were recruited to participate in a periodontal treatment programme, which consisted of six visits for oral hygiene instructions, full mouth scaling and root planing.

Statistical Analyses

Differences in GOI in the CsA and the FK506 and effect of non-surgical periodontal treatment on GOI were analysed by Student's *t* test (Statistical Package for Social Sciences, Version 9, USA). Difference in oral carriage rates of yeasts and coliform in the two groups was analysed by Chi square test.

Results

Chief Complaints

Nature of complaint	No. of patients
Gum swelling	26
Dentine sensitivity	13
Decayed tooth/teeth	13
Gum bleeding	10

Clinical Examination

	CsA	FK506
GOI (mean)	45.2%	25.1%
GI	32.7%	20.0%
DMFT	7.8	8.3

Oral Carriage of Yeasts and Coliforms

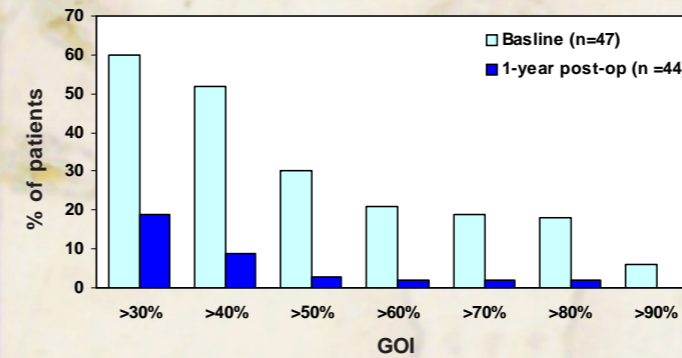
	Yeasts	Coliforms
CsA	15 (31.9%)	20 (42.6%)
FK506	4 (40.0%)	2 (20.0%)
Total	19 (33.3%)	22 (38.6%)

Yeasts and Coliforms isolated

Yeasts	Species	No. of occasions isolated
Yeasts	<i>Candida albicans</i>	14
	<i>Candida glabrata</i>	2
	<i>Candida tropicalis</i>	2
	<i>Candida guilliermondii</i>	1
	<i>Candida parapsilosis</i>	1

Coliforms

Enterobacteriaceae	<i>Klebsiella pneumoniae</i>	12	
	<i>Enterobacter aerogenes</i>	5	
	<i>Enterobacter cloacae</i>	1	
	<i>Enterobacter intermedium</i>	1	
	<i>Enterobacter sakazakii</i>	1	
	<i>Escherichia coli</i>	1	
	<i>Citrobacter freundii</i>	1	
	Neisseriaceae	<i>Acinetobacter</i> spp.	1
	Others	<i>Chromobacterium violaceum</i>	1
		<i>Chryseomonas luteola</i>	1



GOI of CsA before and after treatment

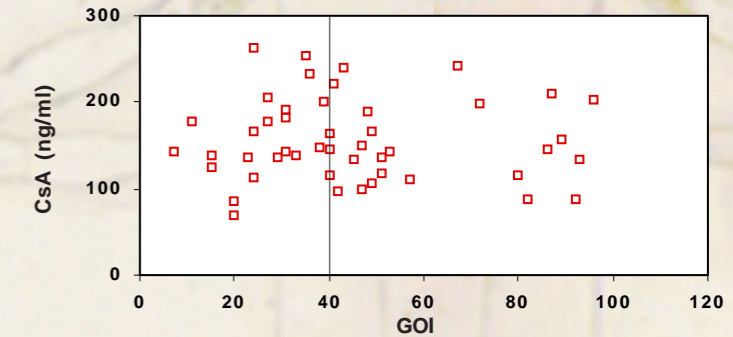


Pre-operative view of a CsA renal transplant patient who had severe gingival overgrowth.

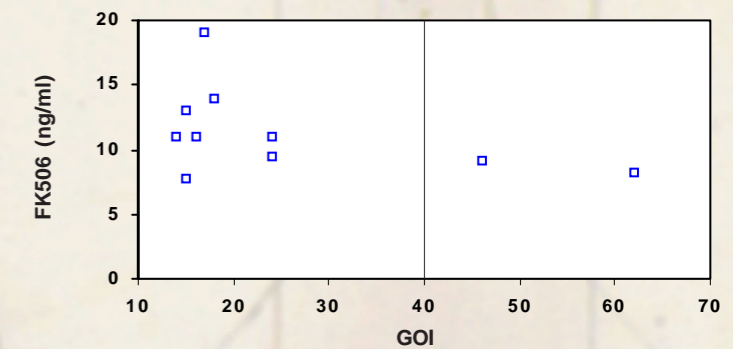


Post-operative view of the same patient, after hygiene therapy, but still receiving CsA.

Scatter plot of serum CsA with GOI



Scatter plot of serum FK506 with GOI



Conclusions

- GOI in the FK506 group was significantly lower than in the CsA group ($p < 0.05$).
- Oral carriage rates of yeasts and coliforms were 33.3% and 38.6%, respectively, and no significant difference was found between the FK506 and the CsA group.
- There was no direct relationship between the serum level of immunosuppressant and the GOI in the cohort.
- FK506 appeared to ameliorate gingival overgrowth, as compared with CsA and non-surgical periodontal treatment was effective in reducing gingival overgrowth in both CsA and FK506 patients

References

- Seymour RA, Smith DG. The effect of a plaque control programme on the incidence and severity of cyclosporin-induced gingival changes. *J Clin Periodontol* 1991; 18: 107-10.
- Samaranayake LP, MacFarlane TW, Lamey PJ, Ferguson MM. A comparison of oral rinse and imprint sampling techniques for the detection of yeast, coliform and *Staphylococcus aureus* carriage in the oral cavity. *J of Oral Path* 1986; 15: 251-4.