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Oral Health Status in Terminal Kidney Insufficiency Patients

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OBJECTIVES

The aim of the study was to determine the oral health status in patients suffering from terminal kidney insufficiency compared to a healthy control group.

MATERIAL AND METHODS

72 dialysis patients of the KfH-Kidney Center Chemnitz, Germany, were examined compared to 147 healthy controls (dental patients of a private practice). All study subjects received a complete clinical oral examination. Gingivitis index (GI), plaque index (PI), pocket depth (PD), attachment loss (AL) and the Decayed Missing Filled/Tooth (DMF-T) index were assessed. A thorough history of systemic diseases, drug use, smoking, oral hygiene habits, and utilisation of dental care was obtained by questionnaires and interviews. Parameters of kidney function were obtained from medical charts for dialysis patients. Each patient's dialysis status was categorised regarding dialysis duration and dialysis efficacy. Data analyses included descriptive statistics, comparison of means and multivariate regression.

RESULTS

A description of the two study groups is summarised in Table 1. Table 2 shows a summary of the oral parameters recorded in the study population. Dialysis patients did show significant worse oral conditions, including missing teeth, caries and periodontal status. Longer time on dialysis (> 3 years) together with a worse efficiency of dialysis (kt/V < 1.6) were associated with the proportion of teeth showing attachment loss ≥ 5mm (Figure) as well as with a higher risk for generalised periodontitis (adjusted odds ratio OR = 7.6; 95 % confidence interval 1.2; 48.1). Generalised periodontitis was defined by at least 30 % of teeth with proximal attachment loss ≥ 5 mm.
After the dentist became aware of the necessity of dialysis, 57 % of the patients did not receive changes in dental treatment, and only 15 % of all dialysis patients were offered any prophylaxis.

Table 1: Description of the study population

		Control group N = 147	Dialysis group N = 72
Age in years, mean ± SD		58.6 ±13,5	61.1±16.0
Male* n (%)		77 (52.4)	53 (73.6)
Smoking*	Smoker n (%)	22 (15.0)	9 (12.5)
	Former smoker	44 (29.9)	35 (48.6)
BMI#		26.9 (24.0; 30.1)	26.7 (24.4; 29.9)
Diabetes mellitus* n (%)		18 (12.2)	25 (34.7)
Hypertonia* n (%)		59 (40.1)	69 (95.8)
Heart diseases* n (%)		19 (12.9)	33 (45.8)
Number used drugs*, (mean ± SD)		2.1 ± 2.6	15.8 ± 3.8
CRP (mg/l)#			2.8 (1.1; 6.5)
Parathormone# (ng/l) n = 71			225 (123; 313)
Calcium# (mmol/l)			2.15 (2.02; 2.27)
Phosphate# (mmol/l)			1.43 (1.20; 1.67)
Dialysis duration#			2.97 (1.44; 4.54)
Dialysis efficacy#			
Kt/V-single pool (Haemodialysis, n = 69)			1.66 (1.37; 1.84)
Weekly-Kt/V (Peritoneal dialysis, n = 3)			2.17 (2.12; 3.69)

* significant differences between groups (Wilcoxon-Mann-Whitney test, in the case of frequency data: Fisher's exact test), # median (I and III quartile) SD: standard deviation, BMI: Body mass index, CRP: C reactive protein

Table 2: Oral findings of the study groups

	Control group N = 147	Dialysis group N = 72
DMFT	19.0 ± 6.2	18.8 ± 7.1
Diseased teeth* (n)	0.2 ± 0.6	1.1 ± 1.8
Missing teeth* (n)	6.9 ± 7.0	9.8 ± 8.2
Plaque index*	0.8 (0.45; 1.03)	1.26 (0.83;1.74)
Gingivitis index*	0.51 (0.31; 0.98)	0.76 (0.42; 1.14)
Pocket depth (mm)	2.4 (2.2; 2.8)	2.4 (2.2; 2.7)
Attachment loss* (mm)	2.8 (2.5; 3.5)	3.1 (2.7; 4.1)
% teeth AL ≥ 5 mm*	13 (4;36)	21 (7;56)
Generalised periodontitis* n (%)	42 (28.6)	32 (44.4)

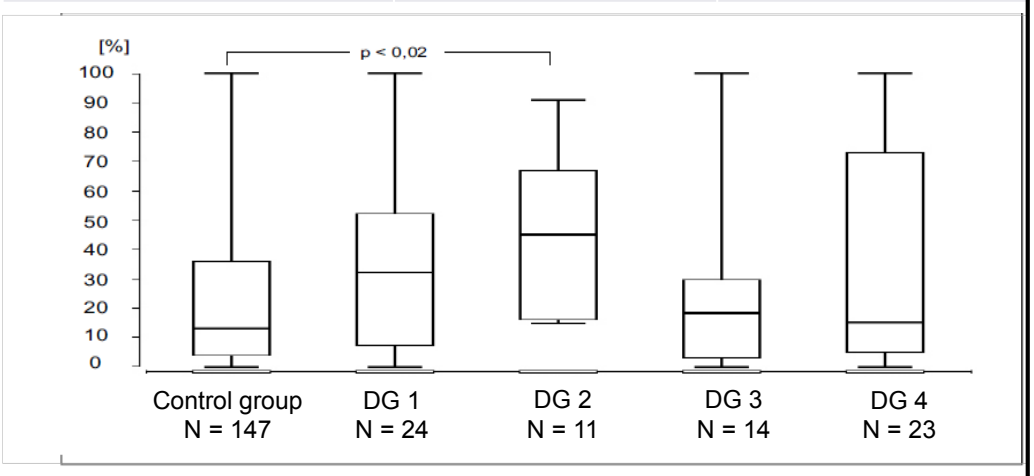

Figure: Proportion of teeth with attachment loss ≥ 5 mm depends on dialysis duration and efficacy (DG: dialysis groups; DG 1, 2: kt/V < 1.6, DG 3, 4: kt/V > 1.6, duration on dialysis: DG1.3 < 3 years, DG 2, 4 > 3 years)

CONCLUSION

Worse oral health was confirmed in hemodialysis patients compared to healthy controls. In dental practice, the awareness of this association is inadequate and has to be improved to reduce the infectious burden as well as to prevent oral complications in these patients.