

# The relation between periodontitis, nutritional status, hospitalizations for cardiovascular causes in haemodialysis

Daniela Toma<sup>1</sup>, Alexandra Tasmoc<sup>1,2</sup>, Simona Dascalu<sup>1</sup>

<sup>1</sup>Fresenius Medical Care, Fresenius NephroCare Dialysis Centre Iasi – Romania

<sup>2</sup>Faculty of Medicine, University of Medicine and Pharmacy "Gr. T. Popa", Iasi – Romania

## Introduction

Periodontal disease is a treatable chronic inflammatory gum disease. It is associated with increased hospitalisations and cardiovascular disease (CVD) in end-stage renal disease (ESRD) patients. CVD is the leading cause of mortality in this population.

## Objectives

To evaluate the relationship between periodontal disease and the nutritional status and number of hospitalizations for CVD in a cohort of haemodialysis (HD) patients.

## Methods

We analysed 101 HD patients (57 females, mean age 52.5±14.3 years) (Table 1).

Periodontal disease assessment was performed by a licensed dentist, including measurement of the periodontal disease index (PDI) with its three components gingival and periodontal index (GP), bacterial plaque index (PI), and the calculus index (CI).

The patient's nutritional status was assessed by means of body fat (%BF) and fat-free mass (%FFM) percentages, measured by bioimpedance spectroscopy.

We also recorded the number of hospitalisations for CVD events from October 2015 until October 2016 from the patients' medical files.

## Results

In terms of the periodontal status, the mean GP value was 4.0±1.3, mean PI 1.8±0.9, and mean CI 1.3±0.7, respectively. The mean %BF was 35.34±10.80 and %FFM 50.11±14.01, respectively (Table 2).

The PI was negatively correlated with %FFM ( $p < 0.01$ ) and positively with % BF ( $p < 0.01$ ) (Table 3).

We did not observe any correlation between any PDI and the number of hospitalisations for CVD ( $p > 0.05$ ) (data not shown).

## Conclusion

The severity of the bacterial plaque index was associated with a low %FFM. Unlike other studies, we did not observe any relationship between the severity of the periodontal disease and the risk of hospitalisation for CVD events.

## References

- Ramfjord SP. Indices for prevalence and incidence of periodontal disease. J Periodontol. 1959; (30):51-59
- Ricardo AC, Athavale A, Chen J, Hampole H, Garside D, Marucha P, Lash JP. Periodontal disease, chronic kidney disease and mortality: results from the third National Health and Nutrition Examination Survey. BMC Nephrol. 2015;16:97.
- Borawski J, Wilczynska-Borawska M, Stokowska W, Mysliwiec M. The periodontal status of pre-dialysis chronic kidney disease and maintenance dialysis patients. Nephrol Dial Transplant. 2007; (22): 457-464
- Tonetti MS, Van Dyke TE, working group 1 of the joint EFPAAPw: Periodontitis and atherosclerotic cardiovascular disease: consensus report of the Joint EFP/AAP Workshop on Periodontitis and Systemic Diseases. J Periodontol. 2013;(84):24-29

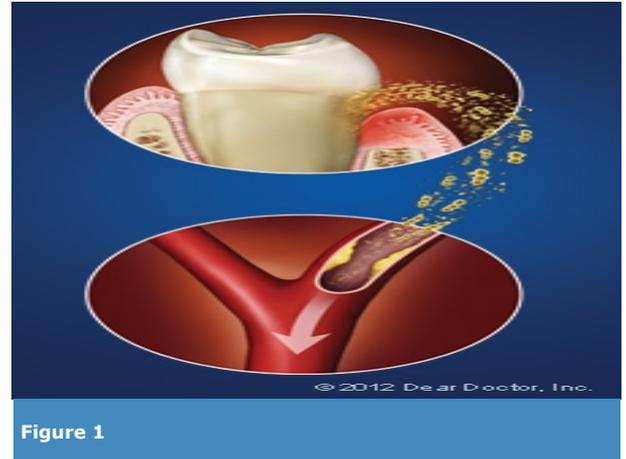


Figure 1

Total (N=101)	
<b>Sociodemographic</b>	
Age (y)	52.5 ± 14.3
Women, N (%)	57 (43.7)
Dialysis vintage (years)	6.74±5.64
<b>Laboratory data</b>	
Hemoglobin (g/dL)	11.72±1.65
Albumin (g/dL)	4.29±0.42
CRP (mg/L)	9.29±15.21
Serum Ferritin(ng/mL)	942.57±712.75
<b>Clinical measures</b>	
Kt/v	1.41±0.25
SBP	148.50±103.12
DBP	73.22±12.07
<b>Comorbidity</b>	
Diabetes Mellitus, N (%)	6 (5.9)
Cardiovascular disease (%)	(N=31) 30.6%
<b>Neurological Impairment</b>	
Neurological Impairment	(N=12) 5.9%
<b>Smoking status</b>	
Yes, N (%)	14 (13.9)
<b>Dental consultation</b>	
Never went	(N=14) 13.3%
When needed	(N=84) 83.2%
Once/year	(N=2) 2.0%
Once every 6 months	(N=1) 1%
Xerostomia	(N=53) 52.5%
<b>Place of living</b>	
Rural	(N=52) 51.5%

Table1 Baseline general characteristics of the study sample (mean ± SD and N, % as appropriate)

Nutritional status	
Body fat (%BF)	35.34±10.80
Fat-free mass (%FFM)	50.11±14.01
<b>Periodontal evaluation</b>	
GP	4.02±1.28
PI	1.76±0.90
CI	1.33±0.72

Table2 Mean and standard deviation of periodontal parameters and nutritional status (GP- gingival and periodontal index , PI- bacterial plaque index, CI-calculus index)

Total (N=101)	PI	
	Pearson's r coefficient,	p value
%FFM	-,218**	<0.01
%BF	,231**	<0.01

Table3 Association of bacterial plaque index with nutritional status (\*\* correlation is significant at  $p < 0.01$ ; \* correlation is significant at  $p < 0.05$ )