CHARACTERIZATION OF PERIODONTAL DISEASE IN A POPULATION OF PATIENTS WITH DIABETES MELLITUS

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INTRODUCTION

Diabetes mellitus (DM) and periodontal disease (PD) represent two pathological entities with high prevalence. Several studies suggest a bidirectional relationship between these two diseases. The evaluation of the incidence of PD in a population of patients with DM is determinant to define strategies of prevention and treatment.

METHODS AND RESULTS

METHODS

- We evaluated 179 consecutive patients followed in the diabetes outpatient clinic of Trás-os-Montes and Alto Douro Hospital Center (CHTMAD), Vila Real, Portugal.
- The population was evaluated for demographic characteristics, anthropometric parameters, HbA1c, DM complications, comorbidities and pharmacological therapy.
- Oral health habits were also characterized and an evaluation of the oral cavity was carried out by a team of medical dentists with evaluation of depth of periodontal pockets, gingival recession, and bleeding on probing.
- The presence and severity of PD was characterized by the CPI (Community Periodontal Index): 0 (healthy periodontal condition), 1 (gingival hemorrhage), 2 (calculus and bleeding), 3 (shallow periodontal pockets - 4 to 5 mm), 4 (deep periodontal pockets - ≥6 mm)

Table 1. Characteristics of population (n = 179)	
Sex	
Female, %	45.8%
Male, %	54.2%
Age, years	62.9 ± 12.0
Education	
<4th year	12.4%
4th year	59.6%
9th year	14.3%
12th year	6.8%
High education	6.8%
BMI, kg/m ²	31.8 ± 6.8
Abdominal circumference, cm	104.2 ± 13.5
Type of Diabetes	
Type 2, %	94.4%
Type 1, %	5.0%
Others, %	0.6%

RESULTS

Table 2. Diabetes Mellitus, complications and comorbidities (n = 179)	
Years of diabetes, years	16.1 ± 9.5
HbA1c	
≤6.5%	24.9%
6.6 - 7.0%	16.8%
7.1 - 8.0%	26.6%
>8.0%	31.8%
Diabetic retinopathy, %	37.8%
GFR, mL/min/1.73 m ²	105.6 ± 49.1
Urinary albumin excretion	
<30 mg / g creatinine	56.6%
30 – 299.9 mg / g creatinine	28.3%
≥ 300 mg / g creatinine	15.2%
Total cholesterol, mg/dl	157.3 ± 32.2
LDL cholesterol, mg/dl	92.3 ± 30.2
HDL cholesterol, mg/dl	50.7 ± 16.1
Triglycerides, mg/dl	111 (85 - 167)
Smokers	9.7%
Former smokers	23.0%
Alcohol consumption	
No consumption / sporadic	65.4%
Moderate consumption	25.9%
Excessive consumption	8.6%

Table 3. Oral health habits (n = 179)	
Brushings / day	
0	32.2%
1	35.6%
2	25.3%
≥3	6.89%
N. of dental medicine consultations / year	
<1	84.3%
1	9.3%
≥2	6.4%
Years since last dental medicine consultation	
≤ 1 year	48.2%
2 - 5 years	21.7%
6 - 10 years	10.8%
>10 years	11.5%
No previous dental medicine consultation	7.8%

Table 4. Objective evaluation of oral health and CPI classification (n = 179)	
Oral health	
Good	3.5%
Moderate	32.4%
Bad	64.2%
CPI classification	
0 - healthy periodontal condition	2.2%
1 - gingival hemorrhage	3.9%
2 - calculus and bleeding	3.9%
3 - shallow periodontal pockets	35.8%
4 - deep periodontal pockets	38.0%
x - edentulous	16.2%

Table 5. Comparison of clinical characteristics according to CPI classification (CPI 0-2 vs CPI 3-4)			
	CPI 0-2 (n=18)	CPI 3-4 (n=132)	P value
Male sex, %	39.4%	60.6%	0.008
Age, years	62.5	61.6	0.652
Education < 9th year, %	64.7%	70.7%	0.615
BMI, kg/m ²	33.2 ± 2.2	31.7 ± 0.7	0.452
Type 2 Diabetes, %	94.4%	93.1%	0.929
Years of diabetes, years	15.1 ± 2.8	15.7 ± 0.9	0.820
HbA1c, %	7.53 ± 0.30	8.21 ± 0.57	0.653
Diabetic retinopathy, %	16.7%	42.4%	0.088
Diabetic nephropathy, %	62.5%	65.0%	0.844
Smokers and former smokers, %	16.7%	34.7%	0.127
Excessive alcohol consumption	5.6%	10.2%	0.535
Brushings / day, n	1.6 ± 0.2	1.0 ± 0.1	0.006
≥1 dental medicine consultations / year, %	27.8%	15.0%	0.171
Years since last consultation, years	2.1 ± 0.7	3.8 ± 0.7	0.356
Bad oral hygiene, %	50.0%	72.1%	0.026

- Regarding oral health habits, 32.2% of the subjects did not brush daily, 84.3% had <1 medical dentist consultation per year and 35.2% did not had any medical dentist consultation in the last 5 years.
- 97.3% of the patients had PD (87.9% with CPI classification 3-4).
- The presence of more severe PD (CPI 3-4) was associated with male sex (p = 0.008), lower number of brushings per day (p = 0.006) and poor oral hygiene (p = 0.026).
- Patients with more severe PD were also shown a tendency to a higher prevalence of diabetic retinopathy (42.4% vs 16.7%, p = 0.088), higher HbA1c (8.21 ± 0.57 vs 7.53 ± 0.30, P = 0.653) and current or past smoking (34.7% vs 16.7%, p = 0.127).

CONCLUSIONS

We observed a high prevalence of PD in patients followed at the CHTMAD diabetes clinic. The presence of poor oral hygiene habits and the difficulty in accessing oral health care seem to contribute to this high prevalence. Given their frequency, screening and early treatment of PD should be a priority in patients with DM.