



## Association between periodontal disease and Vitamin D status in a type 1 diabetic population

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### Background and aims

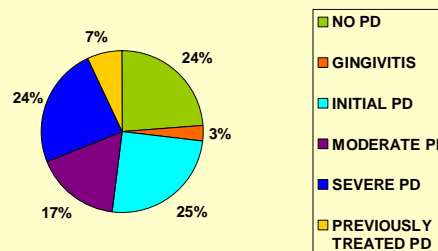
Periodontal disease (PD) is a chronic inflammatory condition where the key feature is the alveolar bone loss. Diabetes Mellitus is a major risk factor in the occurrence of PD and Vitamin D has been found to play a role in the development of diseases such as PD for its immunomodulatory and anti-inflammatory effects. The purpose of this study was to evaluate the relationship between PD and vitamin D levels in type 1 diabetic patients.

### Subjects and Methods

We conducted a prospective longitudinal survey since December 2010 to December 2011. Type 1 diabetic patients aged between 18 and 65 years were recruited. Their periodontal status were examined, metabolic parameters were registered and 25 OH(D), 1,25 OH(D) and PTH were measured.

### Results

	n	Type 1 DM Mean ± SD
Age (yr)	59	44 ± 11,6
Years of DM evolution(yr)	58	19 ± 9,6
Sex (%)	59	56 % males 44 % females
BMI (kg/m <sup>2</sup> )	59	26 ± 4,3
HbA1c (%)	59	7,8 ± 1,09
Calcium p (mg/dl)	48	9,3 ± 0,3
Albumin (g/dl)	48	4,2 ± 0,2
Calcium ion (mmol/l)	48	1,23 ± 0,04
PTH (pg/ml)	49	50
25 (OH) D (ng/ml)	49	26,5 ± 11,8
1,25 (OH) D (pg/ml)	49	53,1 ± 18,4
Osteocalcin (ng/ml)	49	11



	Type 1 DM
PTH	
- < 50 pg/ml	51 %
- > 50 pg/ml	49 %
25-OH-Vitamin D	
- 0-10 ng/ml	2 %
- 11-20 ng/ml	33 %
- >20 ng/ml	65 %

PD was significantly associated with age and systolic blood pressure. Levels of 25(OH)D were inversely associated with PTH ( $r=-0,521$ ;  $p<0,01$ ) and directly associated with 1,25(OH)D ( $r=0,369$ ,  $p<0,05$ ). In regression analysis the only variable that showed to be significantly associated with the degree of PD was 1,25(OH)D, being high levels protectors of PD (OR: 0,953, IC: 0,910-0,998). This means that a decrease of 10 pg/ml increases the risk of PD at 2.69 compared to individuals with 1,25(OH)D normal levels.

### Conclusions

1. We found in this study high prevalence of PD in type 1 diabetic patients. Only 24% of patients do not have any degree of PD.
2. Low serum 1,25 (OH)D concentrations may be associated with increased PD severity.
3. Future studies are needed to prospectively assess the beneficial effect of vitamin D of periodontal disease.