

Does Type II Diabetes Affect Periodontal Disease Progression (CAT Summary)?

Clinical Problem

- In Canada, Approximately 4 million people live with diabetes.
- 90% are estimated to have type II.¹
- Diabetes can severely impact the quality of life and life expectancy of these individuals.

Clinical Question

In a population with periodontitis, to what extent does the presence of type II diabetes mellitus compared to no diabetes affect periodontitis progression within a period of at least two years?

Evidence Search

- Search Date: April 5th 2023
- Parameters applied: Systematic Review, Meta-Analysis and Randomized Control Study
- MeSH terms and key words used: Diabetes, Hyperglycemia, Periodontitis, Diabetes
- Selected Study: Chen-Zhou et al. 2020 (PMID 32652980)
- Systematic Review of 6 cohort studies.
- Sample Size: 48,982 participants
 - Interventions: Patients with controlled and uncontrolled T2DM
 - Primary Outcome: Periodontitis incidence and progression

1- https://www.diabetes.ca/DiabetesCanada/Website/media/Advocacy-and-Policy/Backgrounder/2022_Backgrounder_Canada_English_1.pdf

Clinical Bottom Line

The systematic review (Wu et al., 2020) suggests that presence of poorly controlled type II diabetes mellitus may increase periodontitis incidence in adults. Dentists should be aware of this association especially when treating both these conditions.



Results

	T2DM and periodontitis incidence: RR = 1.34 (95% CI: 1.11–1.61)	Well-controlled: T2DM and periodontitis incidence: RR=1.22 (95% CI 0.63–2.39)	Poorly-controlled T2DM and periodontitis incidence: RR = 3.42 (95% CI 0.43–26.98)
Statistically Significant	Yes	No	No
Clinically Meaningful	Yes	No	Yes
Decisiveness	No	No	No

Strengths and Limitations

Strengths:

- Rigorous search strategy
- Two independent reviewers and an arbitrator
- Publication and selection bias addressed
- PRISMA diagram
- Perspective longitudinal study

Limitations:

- Different methods of defining periodontitis
- Self-reported diabetes
- Large heterogeneity in the results
- Convenient sampling
- Generalizability: various countries and different healthcare systems

Applicability

- The age of the participants matches the age of the Canadian population of interest.
- Study location: Europe, Asia and USA. Good representation.
- Indicators for the progression of periodontitis, such as mean CAL/PD change, alveolar bone loss, and tooth loss can be measured clinically and therefore can be replicated.
- Most of the studies had a of minimum 5-year follow-up which would be reasonable.

Acknowledgments

Faculty mentor(s): Dr. Benhamou, Dr. Tikhonova and Dr. Praveen for their help.