

Press release

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Basic information

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Department of: Dentistry

Main supervisor: Rubens Spin-Neto

Title of dissertation: Diabetes complications, dyslipidaemia and the burden of periodontitis

Date for defence: 06/09/2024 at (time of day): 14:00 Place: Auditorium 1, building 1612, room 018 (Dentistry School), Aarhus University, Vennelyst Boulevard 9, 8000 Aarhus C.

Press release (Danish)

Ph.D.-forsvar af Fernando Valentim Bitencourt om diabeteskomplikationer, dyslipidæmi og byrden af parodontitis.

Forekomsten af parodontitis, en inflammatorisk tilstand i tandkødet, er tre gange højere hos personer med type 2-diabetes (T2DM) sammenlignet med personer uden type 2-diabetes. På trods af sin udbredelse har sammenhængen mellem parodontitis og diabetesrelaterede komplikationer været uklar indtil nu.

Med udgangspunkt i populationsstudier af dansk og amerikansk populationsdata fra hhv. Health in Central Denmark (HICD) og National Health and Nutrition Examination Survey (NHANES), blev denne sammenhæng analyseret. Resultaterne viste, at parodontitis forekommer samtidig med andre diabetesrelaterede komplikationer, påvirket af faktorer som alder, køn, overvægt, fysisk aktivitet, livsstilsvaner, socioøkonomiske faktorer, rygning, HbA1c-niveauer og dyslipidæmi. Desuden påviste ph.d.-afhandlingen, at høje HbA1c-niveauer og overvægt har en signifikant indirekte effekt på parodontitis gennem dyslipidæmi. Ydermere øger diabetisk retinopati og neuropati individuelt og i kombination sandsynligheden for at udvikle parodontitis med 1,2 til 1,5 gange.

Ligeledes blev det afdækket, at dyslipidæmi ændrede signifikant på sandsynligheden for at udvikle moderat/alvorlig parodontitis, især når flere mikrovaskulære komplikationer forårsaget af diabetes var til stede.

Disse resultater understreger nødvendigheden af at inkludere parodontitis i forebyggelsen og håndteringen af diabetesrelaterede komplikationer, specielt for patienter med dyslipidæmi.

Dette ph.d.-projekt blev udført af Fernando Valentim Bitencourt, som forsvarer sin afhandling d. 6. september 2024.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 06/09/2024 kl. 14 i Auditorium 1 (1612-018), Aarhus Universitet, Vennelyst Boulevard 9, 8000 Aarhus C. Titlen på projektet er "Diabetes complications, dyslipidaemia and the burden of periodontitis". Yderligere oplysninger: Ph.d.-studerende Fernando Valentim Bitencourt, email: fvbitencourt@dent.au.dk.

Bedømmelsesudvalg:

Opponenter

Professor Lau Casper Thygesen, ph.d.

Statens Institut For Folkesundhed, Syddansk Universitet, København, Danmark

Professor Marja L. Laine, ph.d.
Academic Centre for Dentistry Amsterdam – ACTA
Section for Periodontology, Amsterdam, Holland

Forperson og ordstyrer ved ph.d.-forsvar
Professor Mario Vianna Vettore, ph.d.
Sektion for Oral Økologi
Institut for Odontologi og Oral Sundhed, Aarhus Universitet, Danmark

Ikke-stemmeberettiget medlem (vejleder)
Professor Rubens Spin-Neto, DDS, ph.d., dr.odont.
Sektion for Oral Radiologi og Endodonti
Institut for Odontologi og Oral Sundhed, Aarhus Universitet, Danmark

Press release (English)

PhD defence by Fernando Valentim Bitencourt on diabetes complications, dyslipidaemia and the burden of periodontitis

The prevalence of periodontitis, an inflammatory condition that affects the tissues supporting teeth, is three times greater in individuals with Type 2 Diabetes Mellitus (T2DM) than in those without T2DM. Despite this prevalence, the relationship between periodontitis and diabetes-related complications has remained unclear until now. The PhD studies, conducted through population-based studies, analyzed data from participants across US and Denmark: the National Health and Nutrition Examination Survey (NHANES) and the Health in Central Denmark (HICD) study. The findings reveal that periodontitis co-occurs with other diabetes-related complications, influenced by factors such as age, sex, obesity, physical activity, diet, socioeconomic status, smoking, HbA1c levels, and dyslipidaemia. The study also demonstrated that higher HbA1c levels and obesity had a significant indirect effect on periodontitis through dyslipidaemia. In addition, diabetic retinopathy, neuropathy, and both complications increase the likelihood of developing periodontitis by 1.2 to 1.5 times. Furthermore, dyslipidaemia was shown to significantly modify the odds of 'moderate/severe' periodontitis, particularly when multiple diabetic microvascular complications are present. These findings underscore the need to include periodontitis in prevention and management strategies for diabetes-related complications, especially for patients with dyslipidaemia.

The project was carried out by Fernando Valentim Bitencourt, who is defending his dissertation on 06/09/2024.

The defence is public and takes place on 06/09/2024 at 14:00 in the Department of Dentistry and Oral Health (room 1612-018), Aarhus University, Vennelyst Blvd. 9, 8000 Aarhus. The title of the project is "Diabetes complications, dyslipidaemia and the burden of periodontitis". For more information, please contact PhD student Fernando Valentim, Bitencourt, email: fvbitencourt@dent.au.dk.

Assessment committee:

Opponents

Professor Lau Caspar Thygesen, PhD
National Institute of Public Health, University of Southern Denmark, Copenhagen, Denmark

Professor Marja L. Laine, PhD
Academic Centre for Dentistry Amsterdam – ACTA
Section for Periodontology, Amsterdam, the Netherlands

Chairperson and moderator of PhD defence
Professor Mario Vianna Vettore, PhD
Section for Oral Ecology
Department of Dentistry and Oral Health, Aarhus University, Denmark

Non-voting member (Main supervisor)
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