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The association between periodontal disease and preterm birth in Canadian women: A retrospective cohort study

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Aim: Current literature on the association between periodontal disease and preterm birth remains inconclusive. The aim of this retrospective cohort study is to further analyse this relationship by comparing periodontal parameters among pregnant women who have delivered a full term baby with those who have delivered a preterm (<37 weeks GA) or very preterm (<32 weeks GA) baby.

Methods: A retrospective cohort study was conducted using data collected for a previous multi-centre case-control study in Quebec, Canada. 49 pregnant women with periodontal disease and 196 periodontal healthy pregnant women were included in this study. Periodontal disease was defined using the Community Periodontal Index of Treatment Needs (CPITN) as a pocket depth ≥6 mm, with gingival bleeding at the same site. Preterm birth and very preterm birth were defined as gestational age <37 weeks and <32 weeks, respectively.

Results: 9 of the 49 women with periodontal disease delivered preterm (18%), compared to 28 of the 196 women without periodontal disease (14%). Multivariable unconditional logistic regression was performed (OR: 1.35 [95% CI 0.59-3.09]). After adjusting for age, ethnicity, and income, the association remained insignificant (OR: 1.51 [95% CI 0.61-3.71]).

Conclusion: Our findings do not support the hypothesis that periodontal disease is an independent risk factor for preterm birth or very preterm birth.

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Functionalization of titanium surface with chitosan via silanation: 3D CLSM imaging of cell cytocompatibility behavior

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Background: Biocompatibility ranks as one of the main properties of dental materials. One of the criteria for biocompatibility is the absence of material toxicity to cells, according to the ISO 7405 and 10993 recommendations. Among numerous available methods for toxicity assessment; 3-dimensional Confocal Laser Scanning Microscopy (3D CLSM) imaging was chosen because it provides an accurate and sensitive index of living cell behavior in contact with chitosan coated implants.

Aim of the study: The purpose of this study was to investigate the cytocompatibility of functionalized titanium with chitosan via a silanation using sensitive and innovative 3D CLSM imaging as an investigation method for cytotoxicity assessment.

Methods: The biocompatibility of four samples (controls cells, TA6V, TA6V-TESBA and TA6V-TESBA-Chitosan) was compared *in vitro* after 24h of exposure. Confocal imaging was performed on cultured human gingival fibroblast (HGF1) like cells using Live/Dead® staining. Image series were obtained with FV10i confocal biological inverted system and analyzed with FV10-ASW 3.1 Software (Olympus France).

Results: Image analysis showed no cytotoxicity in the presence of the three tested substrates after 24h of contact. A slight decrease of cell viability was found in contact with TA6V-TESBA with and without chitosan compared to negative control cells.

Conclusion: Our findings highlighted the use of 3D CLSM confocal imaging as a sensitive method to evaluate qualitatively and quantitatively the biocompatibility behavior of functionalized titanium with chitosan via a silanation. The biocompatibility of the new functionalized coating to HGF1 cells is as good as the reference in biomedical device implantation TA6V.

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