

B 会 場

IO-01～07



国際セッション口演

(B会場)

5月20日（金） B会場 8：50～10：00

IO-01
2599

Relationships between the ability of subgingival plaque to stimulate Toll-like receptor 4 and periodontal conditions

ZIAUDDIN SM

Keywords: Subgingival plaque, Plaque Index, Toll-like receptor 4
Objectives: Previously we found that the TLR4-stimulating ability of supragingival plaque was associated with plaque score and BOP at the sampling sites. We hypothesized that supragingival plaque might affect the periodontium through its influence on subgingival plaque. This study investigated the relationships between the TLR4-stimulating ability of subgingival plaque and periodontal conditions.

Materials and methods: One hundred and thirteen subgingival plaque samples were collected from the deepest pockets in chronic periodontitis patients. Their TLR4-stimulating ability was measured using a genetically engineered NF- κ B reporter cells. To evaluate the relevance of TLR4-stimulating ability on proinflammatory cytokine induction, PBMCs were stimulated with subgingival plaque samples with or without a TLR4 antagonist, lipid IVa, and the production of TNF- α and IL-8 were analyzed by ELISA.

Results: The TLR4-stimulating ability of subgingival plaque was associated with the plaque index, but not with other periodontal parameters. PBMCs stimulated with subgingival plaque samples produced TNF- α and IL-8, and the lipid IVa substantially inhibited cytokine production.

Conclusions: The accumulated supragingival plaque, which possesses strong TLR4-stimulating ability, may enhance the TLR4-stimulating ability of subgingival plaque, and it might be essential for gingival inflammation.

IO-03
2107

Consideration of Influence on the Risk of the Dental or Oral Disease in the Northern and Mountain Site of Rural Area, Lao P.D.R

Vorasack Phounsiri

Keywords: Risk Factors, Dental or Oral Diseases, Rural Area, Lao PDR

Objectives: It is possible to indicate two specific characteristics of Lao PDR One is that Lao P.D.R is located at the borderline of five different countries such as Thailand, Myanmar, China, Vietnam and Cambodia. The other one is that it is composed of many minority ethnics, and eels are widely distributed throughout the nation. These characteristics sometimes influence various aspect of culture, languages and sense of values towards health. The purpose of this report is to determine the dental/oral disease risks influenced by multiple unique characteristics especially in the northern and Mountain side of Rural Area, Lao PDR.

Materials and methods: The samples were selected from the residents in Ban Vangheua village. An interview method was used to the samples to define the knowledge of dental and oral health, and the behavior for oral health and the reaction towards the symptoms of oral or dental disease.

Results: According to the result of the 4 questions, clean their teeth, 47.5% showed 2 to 3 time per day, 50% showed once a day and 2.5% showed zero. The experience of tooth/teeth pain showed that 2.5% of the muse salt which is the traditional care among the sample group. 20% of them take medicine such as western drugs, and other 20% do nothing. The question of visit dental service institutions, 47% visiting traditional dentists, 20% of the samples answered as using services at a health center, 10% of the samples answered as using services at a provincial hospital, and the last 5% answered as using services at private dental clinics.

Conclusions: The knowledge of oral and dental health behaviors are still poor and many dental and oral problems can be seen. Based on our investigation in this village, many oral and dental diseases were found including periodontal disease, severe dental decayed, missing tooth and inflammatory disease causing bacterial infection and by products are the principle etiologic agents.

IO-02
3104

The effect of cathepsin-B deficiency on gingival overgrowth in mice

Rehab Alshargabi

Keywords: cathepsin-B, null mouse, gingival overgrowth

Objectives: We previously suggested gingival overgrowth was one subtype of lysosomal storage disease caused by reduced activity of cathepsins. We reported (i) phenytoin and cyclosporine A suppress *cathepsin-L* expression in gingival fibroblasts (Yamada, *et al.*, *J Periodontol*, 2000), (ii) *cathepsin-L* null mice develop gingival enlargement, the histology quite similar to human gingival overgrowth (Nishimura, *et al.*, *Am J Pathol*, 2002). The aim of this study is to understand the effect of cathepsin-B deficiency on gingival overgrowth.

Materials and methods: Cathepsin-B deficient mice were maintained at the Department of Dental Pharmacology, Kyushu University Faculty of Dental Science. Cathepsin-B deficient mice and wild-type littermates were grown and sacrificed at 8 weeks after birth. Gingival appearance was observed by microscopy. Mandibular gingival tissues were fixed, de-calcified, and embedded in paraffin for histological observation, followed by HE staining.

Results: Cathepsin-L null mice had thicker gingiva than cathepsin-B deficient mice by low-power field. However, slightly thickened gingival epidermis and elongated rete pegs were observed in cathepsin-B null mice.

Discussion and summary: Since cathepsin-L deficiency appeared to induce increased gingival enlargement than cathepsin-B deficiency, impaired cathepsin-L activity might play critical role in developing gingival overgrowth.

IO-04
2402

The relationship between macrophage erythroblast attacher (MAEA) gene polymorphism and periodontitis in postmenopausal Japanese women

Yulan Che

Keywords: macrophage erythroblast attacher, gene polymorphism, periodontitis

Objectives: Macrophage erythroblast attacher (MAEA) mediates the attachment of erythroblasts to macrophage and plays an important role in the development of mature macrophages. A GWAS demonstrated that MAEA gene polymorphism was associated with type 2 diabetes. The aim of this study was to explore the possible relationship between MAEA gene polymorphism and periodontitis in postmenopausal Japanese women.

Materials and methods: The final sample in this study comprised 345 postmenopausal Japanese women who lived in Yokogoshi area, Niigata City. Probing pocket depth (PPD) and clinical attachment levels (CAL) were measured per tooth. Genomic DNA was extracted from peripheral blood. SNP of the MAEA (rs6815464) was analyzed with the TaqMan method. Biochemical values of blood, including hemoglobin A1c (HbA1c) and high-sensitivity C-reactive protein (hsCRP), were evaluated. Bone mineral density (BMD) of the right femoral neck was measured using dual-energy X-ray absorptiometry. Demographic and lifestyle information was obtained at the interview.

Results: No significant difference in age, number of teeth, smoking, BMD, HbA1c, presence of diabetes, or hsCRP was found between the genotypes. In unadjusted analyses, the percentage of sites with CAL \geq 4mm was significantly higher in the genotype CG group than in the CC group ($P = 0.048$). In multivariable regression models, the genotype CG group had a significantly higher percentage of sites with CAL \geq 4 mm ($P = 0.027$).

Conclusions: The results of the present study indicate that the MAEA gene polymorphism was not associated with diabetes, but was associated with CAL in postmenopausal Japanese women.

IO-05

2504

Periodontal healing with a preameloblast-conditioned medium in dogs

Sang Joun Yu

Keywords: cementoblast, periodontal healing, regeneration, replantation

Objectives: A preameloblast conditioned medium (PA-CM) was prepared from cultured murine apical bud cells, which can differentiate into ameloblasts. We examined the effect of PA-CM on PDL cells and cementoblasts in vitro and evaluated histologically the effects of PA-CM on the regeneration of experimentally-induced periodontal defects in vivo.

Materials and methods: In vitro, the effects of PA-CM on the migration of human PDL cells were examined using a scratch wound healing assay and a transwell assay. The differentiation and mineralization potential of PA-CM-treated human PDL cells and murine cementoblastic OCCM-30 cells was examined by real-time PCR and Alizarin red-S staining. In vivo, 6 mongrel dogs (12 to 16 kg; 6 to 8 months old) were used. A total of twenty-four roots were replanted with either of the following: 1) only periodontal defects (n=12; control group); or 2) periodontal defects and PA-CM treatment (n=12; experimental group). In the experimental group, the PDL and cementum between notches was removed using a Gracey curette and soaked in 0.08 ml water containing 80 µg of a PA-CM for 2 minutes. The dogs were sacrificed at 4 and 8 weeks post-surgery.

Results: The in vitro results showed that PA-CM stimulated the migration of PDL cells and promoted the differentiation and mineralization of PDL cells and cementoblasts. Real-time PCR analysis revealed stronger expression of Runx2, Osx, OC, Bsp, and Cap mRNAs in the PA-CM-treated PDL cells and cementoblasts than those in the control cells. In vivo, newly formed PDL-like tissue and cementum-like tissue were observed partially between the root surfaces and newly formed bone in the experimental group. The regenerated PDL-like tissue in the experimental group was significantly higher than that in the control group at 8 weeks ($p < 0.05$). In addition, the amount of newly formed cementum-like tissue in the experimental group was significantly higher than that in the control group at 4 and 8 weeks ($p < 0.05$).

Conclusions: These results suggest that PA-CM has the potential to regenerate periodontal tissues in PDL and cementum defects.

IO-07

2203

The role of immunoglobulin G subclass antibodies against *Porphyromonas. gingivalis* in threatened preterm labor and preterm birth cases.

Changchang Ye

Keywords: immunoglobulin G, *Porphyromonas. gingivalis*, periodontal disease, threatened preterm labor, preterm birth

Objectives: Periodontal disease is considered to be a risk factor for threatened preterm labor (TPL) and preterm birth (PB). *Porphyromonas.gingivalis* (*P.g.*) might play a role in how periodontal disease affect pregnancy outcome, but underlying mechanisms have not yet been elucidated. The purpose of this study was to determine the immunoglobulin G (IgG) and the four types of subclass IgG antibodies against *P.g.* in TPL and PB patients.

Materials and methods: Serum and oral (plaque and saliva) samples were taken from 47 women who had been diagnosed as TPL, compared with 48 samples from healthy pregnant women. The periodontal parameters were recorded. *P.g.* was identified oral samples by using real-time polymerase chain reaction with taqman probe. Serum IgG and subclass IgG (IgG1, IgG2, IgG3, IgG4) antibodies against *P.g.* were detected by using enzyme linked immune sorbent assay.

Results: Serum IgG1 antibody was significantly lower in TPL group than in healthy group. Of 95 births, 14 (14.7 %) delivered preterm birth. 13 from TPL group and 1 from healthy group. Serum IgG antibody against *P.g.* and quantity of plaque *P.g.* was higher in PB group than in normal delivery (ND) group but not significantly ($p=0.08$). The quantity of *P.g.* in oral plaque was significantly higher in PB group than in ND group. There is no significant difference of IgG1, IgG2, IgG3, IgG4 antibodies against *P.g.* between PB group and ND group.

Conclusions: Present study suggested that oral *P.g.* infection was a risk factor in preterm birth. However, IgG1 antibody against *P.g.* was a protective factor in TPL.

IO-06

2504

The Value of CBCT in Clinical Decision Making for Periodontal and Infrabony Defect Assessment

Supreda Suphanantachai

Keywords: Cone-beam computed tomography, Intraoral radiography, Periodontitis, Infrabony defect, Clinical decision making

Objectives: The aim of this study is to compare the assessment of periodontal conditions and infrabony defects between conventional intraoral radiography (IOR) and cone-beam computed tomography (CBCT).

Materials and methods: Twenty-five subjects who had periodontitis and at least 2 infrabony defects were recruited for study. All subjects received clinical periodontal examination, IOR, and CBCT. Three periodontists assigned periodontal diagnosis and prognosis of each tooth. For teeth with infrabony defects, the number of defect walls and treatment was determined. IOR and CBCT assessment was compared.

Results: Total 666 teeth and 123 infrabony defects were included for analysis. The overall concordance between IOR and CBCT for periodontal diagnosis, prognosis, infrabony defect type, and infrabony defect treatment, were 79.3%, 69.5%, 44.7%, and 64.2%, respectively. IOR underestimated diagnosis, prognosis, and the number of infrabony defect walls at 16.4%, 24% and 37.4%, respectively. IOR and CBCT had poor concordance for periodontal regeneration (43.3%). Tooth extraction was more prevalent when assessed by CBCT (35.0% vs. 22.7%). CBCT had excellent inter-examiner agreement (Fleiss' kappa 0.87-0.94) and higher percentage of complete agreement among examiners than IOR for all assessments.

Conclusions: The use of IOR led to the underestimation of periodontal disease severity and prognosis.

CBCT was superior to IOR for evaluation of infrabony defect morphology and treatment options.

CBCT provides excellent agreement among examiners on periodontal and infrabony defect assessment.