probing pocket depth (PPD) reduction, and less inflammation and bleeding (BOP), respectively.

Methods: Thirty-eight patients were included in this study having implants, which were BOP-positive, had pockets ≤ 5 mm and no/minute bone loss. All implants were cleaned with ultrasonic scalers and plastic curettes and were rinsed with 0.2% chlorhexidine solution. The control (A) and test group (B) received topical chlorhexidine gel or up to 4 chlorhexidine chips in the affected sites, respectively. After 3 months, sites were re-evaluated and gel/chips were re-applied where required (PPD>3 mm and bleeding). After 6 months, 32 patients were assessed (15 control and 17 test). Improved, unchanged and worsened sites with regard to bleeding and probing pocket depths were expressed as percentages. In addition, relative changes of BOP and PPD per implant were calculated and analyzed with multiple linear regression.

Results: With regard to bleeding, the percentages of improved, unchanged and worsened sites accounted for 32%, 61% and 7% in the control and 46%, 53% and 1% in the test group, respectively. The PPD values were 26%, 66% and 8% (control) versus 57%, 38% and 5% (test). These findings were backed by the linear regression analysis with the implant as the statistical unit: Chip application led to a significantly higher relative decrease in BOP and PPD in comparison to the control group.

Conclusion: A twofold chip application reduced the number of bleeding sites and probing pocket depths during recalls. It may therefore be a preventive protocol, especially in high-risk patients.

O022

Comparison of two different surface decontamination methods by cytokine expression analysis in surgical treatment of peri-implantitis

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Background & Aim: Implant surface decontamination plays a major role in success of surgical regenerative treatment (SRT) of peri-implantitis. Cytokine levels in peri-implant sulcus fluid (PISF) could be used as a potential prognostic and diagnostic tool for peri-implantitis, moreover it has been reported to reflect biologic activity of the disease (progression and severity). The aim of this study was to analyse cytokine expression levels in PISF and clinical and radiographic parameters between two different implant surface decontamination methods before and 6 months after SRT of peri-implantitis.

Methods: A total of 21 patients with moderate or advanced peri-implantitis were randomly allocated to the ozone group with the use of sterile saline with additional ozone therapy or the control group with sterile saline alone for decontamination of the implant surfaces. PISF was sampled from the deepest pockets of 40 implants in study groups before and 6 months postoperatively. The mRNA expression levels of interleukin (IL)-6, IL-8, IL-17A, vascular endotelial growth factor (VEGF), sclerostin and osteoprotegerin (OPG) were evaluated by quantitative real-time polymerase chain reaction (qPCR). Changes in cytokine expression levels were evaluated and compared with clinical and radiographic findings.

Results: At the end of a 6-month observation period, no significant differences were found between ozone and control group in clinical and radiographic parameters and cytokine levels. However, significant reductions in IL-6, IL-8, IL-17A, VEGF and sclerostin levels in PISF were observed at 6 months postoperatively compared to baseline, irrespective of treatment groups ($p > 0.05$). Six-month post-interventional assay revealed positive correlations between the reductions in IL-6 and sclerostin expression levels and probing pocket depth reductions.

Conclusion: SRT of peri-implantitis could reduce inflammatory cytokines expression levels in PISF. However, the additional use of ozone therapy produces no significant benefit compared to sterile saline irrigation alone for implant surface decontamination in SRT of peri-implantitis.

O023

Clinical and immunological response to photodynamic therapy in the treatment of peri-implantitis

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Background & Aim: Periimplantitis is defined as an inflammatory lesion leading to a peri-implant bone loss. Recently, it is shown that the adjunctive photodynamic therapy (PDT) could be used in the treatment of periimplantitis. The aim of the study was to evaluate clinical and immunological outcomes after the surgical therapy of periimplantitis, when diverse methods of implant surface decontamination were used.

Methods: The study involved 30 implants with diagnosed periimplantitis, divided into two groups. In the experimental group (16 periimplantitis) PDT was used for decontamination of implant surface and periimplant tissues during the surgical procedure, while in the control group (14 periimplantitis) chlorhexidine gel was used. Bleeding on probing (BOP), periimplant probing depth (PPD) and clinical attachment level (CAL) were recorded at baseline, 3, 6, and 12 months after the surgery. Additionally, the levels of IL-1β, IL-6, and IL-17 in the periimplant crevicular fluid were measured by ELISA, as well.

Results: Levels of IL-17, IL-1β and IL-6 decreased significantly in both groups three and 12 months after the surgery. PDT was associated with significant decrease of IL-17 and IL-6 ($p < 0.05$) comparing with chlorhexidine application. Both methods showed the improvement of the evaluated clinical parameters. However, the use of PDT resulted in significant decrease of BOP ($p < 0.05$) in comparison with chlorhexidine. There was no significant difference in PPD and CAL results between two study groups.

Conclusion: PDT could be proposed as an adjuvant therapy for the decontamination of implant surface and surrounding periimplant tissues in the treatment of periimplantitis.

Research session | Psychosocial factors

O024

Type A behaviour pattern, stress and emotional vulnerability are associated with more severe aggressive periodontal diseases

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Background & Aim: Psychosocial factors, especially depression, perceived stress, Type A Behaviour Pattern (TABP) and Locus-Of-Control (LOC), supposedly impact the course of periodontal

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