



Improving recall loyalty by avoiding pain

Efficient biofilm management is the decisive success factor for the prevention, treatment and follow-up of biofilm-induced oral diseases. Whereas the focus had been on the cleaning performance of the available aids for decades, nowadays substance protection as well as comfort and acceptance are playing an increasingly important role for patients in their recall adherence rate and thus in the long-term success of treatment.

Today, the ecological plaque hypothesis according to Marsh [1] is recognized worldwide as the cause of the most important oral diseases (caries, gingivitis, periodontitis, peri-implant mucositis and peri-implantitis). An ecological shift from symbiosis to dysbiosis takes place in the vital sub- and supragingival dysbiotic biofilm. The increase in pathogenic bacteria interferes with homeostasis. A stable ecological balance (homeostasis) between the resistant microbiome and the immunocompetent cells is necessary for the long-term stability of oral (and general) health. Dysbiosis can lead to a tissue-destructive immune response.

Oral biofilms need to be removed by regular mechanical and chemical biofilm management at home as well as by regular professional mechanical and chemical biofilm and calculus management, with professional tooth cleaning (PTC or better professional mechanical plaque removal/PMPR) representing the main focus of both home and professional measures. The most important tools available today are hand instruments, sonic and ultrasonic instruments, classical polishing (RCP) and powder water jet equipment (Air-Flowing technology). In addition to cleaning performance and protection of the tooth substance, comfort for the practitioner and above all for the patient is playing an increasingly important role in PMPR. Only if PMPR does not provoke pain or unpleasant sensations, can patients be expected to keep their agreed recall appointments. In addition to the application of anesthetics to reduce pain, the aids employed are of great importance in preventing pain.

Literature comparison of the individual aids

Both professional mechanical plaque reduction (PMPR/PTC) as well as subgingival instrumentation in the context of periodontal therapy (AIT) and maintenance therapy (SPT) are associated with unpleasant sensations, pain and anxiety for patients [2,3]. This can cause patients to miss agreed appointments, delay appointments, or cancel planned treatment altogether. For years, the scientific

community has focused almost exclusively on the effectiveness of the individual tools available. The preservation of tooth substance, comfort for patients and practitioners played a subordinate role. And yet there are clear correlations between substance preservation and patient comfort.

Aids and substance preservation

In 1997, Flemmig already postulated that a loss of more than 0.5 mm cementum/dentin over the period of 10 years is already clinically unacceptable in maintenance therapy. This means that a maximum of 0.05 mm (50 μm) should be removed per year. In other words, at four maintenance sessions per year, a maximum of 12.5 μm of dentin/cementum may be removed in each session. Based on the paper of Ritz et al. [4] in 1991, a contact force of 100 p with a magnetostrictive ultrasonic scaler leads to an average substance loss of 11.6 μm after 12 working strokes. This value lies exactly within the maximum range which may be ablated per session. When using a sonic scaler and the same working conditions, the value is 93.5 μm . This is double the maximum value that should be lost in a year. When using a curette (500 p contact pressure), the substance loss is 108.9 μm and therefore also well outside the proposed limit. Other papers [5-7] also substantiate that the sequence is always the same for substance loss. Curettes exhibit the highest loss of substance, followed by sonic scalers, ultrasonic scalers and powder water jet devices. The same picture is also evident when these aids are applied to the gingiva [8]. Badersten et al. [9] summarized their study results as early as 1984 as follows: hand instrumentation in pockets up to 4 mm leads to attachment loss, therefore: "Do not instrument shallow pockets!" Loss of substance accompanied by loss of attachment very often leads to tooth hypersensitivity.

Aids and patient comfort

Wennström et al. [10] already demonstrated in 2005 that the same clinical results are achieved in non-surgical periodontitis therapy in comparison with the classical approach (scaling and root planing with hand instruments) versus piezoceramic ultrasonic scaler (PUS). Treatment time was 3 times shorter with PUS, anesthetic consumption was 2.5 times less, and patient comfort was considerably better. Suvan et al. [11] compared curettes versus PUS in non-surgical periodontitis therapy in terms of pain and cervical hypersensitivity. The clinical parameters improved equally positive in both groups: but with significantly less hypersensitivity at weeks 1, 4, and 8 when applying PUS. The greatest comfort level for patients is achieved when applying Airflow technology (AF) compared with all other aids. Pain and discomfort during prevention and non-surgical periodontal therapy are less when using Airflow technology than with ultrasonic devices and hand instruments. This is demonstrated in a very large number of scientific papers. Among other things, AF has been shown to offer advantages or superiority over the conventional treatment approach in terms of patient comfort, time expenditure, and safety [12-23].

Recently, more and more papers have been published demonstrating that the acceptance of Guided Biofilm Therapy® (GBT), in which PMPR is performed with Airflowing (a system consisting of the Airflow Prophylaxis Master with a constant powder flow, the AirflowMax handpiece with laminar flow and the minimally abrasive erythritol-

based Plus powder) and Piezon® NoPain/PS, leads to an improvement in the recall adherence rate. Furrer et al. [24] conducted a study at the University of Zurich on 100 consecutive patients from the hospital's internal recall system. The acceptance of GBT® was investigated in comparison to the conservative classical recall care performed to date, which is predominantly based on hand and ultrasonic devices with classical polishing. The powder jet unit showed the best acceptance. The aspect of anxiety before/during the recall session also proved interesting. At an already low level (10%), there was an additional reduction to 4%, as hand instruments were used much less overall and only in a very targeted manner. In a practice observational study, 50 patients who had been coming for recall for a minimum of 5 years were asked how they perceived the treatment with the new method (GBT®) (Fig. 1) compared to the previous methods with hand instruments, brushes and polishing pastes. All 50 patients interviewed stated that they felt the new treatment was better. Not a single patient rated the new treatment method as being either equally good or worse [25]. The paper by Vorous et al. [15] confirms these results.

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Summary

Dental biofilm plays a critical role in the etiopathogenesis of oral diseases. Over decades the focus was only placed on the effectiveness of biofilm and calculus management, today the focus is increasingly shifting to substance protection and comfort for patients and practitioners, in addition to the obvious control of effectiveness. These days, biofilm and calculus management in prevention, initial and maintenance therapy must be conducted with little or no pain and in a manner that preserves tooth substance. If this is successful, then the recall adherence rate will also increase significantly. On the one hand, the aids include anesthetics and, on the other hand, state-of-the-art methods such as Airflowing and Piezon® NoPain/PS, which are provided as part of a systematic prevention procedure protocol (GBT®). By switching the process protocol of the prevention session to Guided Biofilm Therapy® (GBT®), which reflects scientific findings and technical progress, it is possible to achieve a high standard in the area of structural and process quality. In addition, patient satisfaction (quality of results) plays a key role in the success of prevention. Success correlates strongly with long-term patient loyalty. This, in turn, depends largely on the quality of the treatment performed and the pain/well-being experienced. The reason being: only satisfied patients like coming back. ■



Fig. 1: A patient expresses her satisfaction with the new GBT treatment (© EMS)

Literature references at www.pnc-aktuell.de/literaturlisten



Dr. Nadine Strafela-Bastendorf
Logauwe 7, 73054 Eisingen

Dr. Klaus-Dieter Bastendorf
Gairenstr. 6, 73054 Eisingen, Germany
info@bastendorf.de

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