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Editorial

# Guided biofilm therapy (GBT) in periodontal disease and peri-implant disease

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It is generally known that home care dental hygiene alone cannot entirely eradicate the newly created bacterial deposits from the remaining pockets. Patients are therefore supposed to be placed on SPT that requires expert dental biofilm management. In terms of clinical outcomes, GBT has been shown to be equally successful as traditional SRP therapy. GBT, however, was said to be more comfortable for patients who perceived their discomfort less.

The results of the literature review indicate that numerous research have been conducted to evaluate the effects of GBT on periodontal or peri-implant disease. Few studies have documented a decrease in red-complex bacteria in patients receiving GBT who were periodontally healthy. Additionally, studies with patients who had periodontitis discovered a significant decrease in the pocket depth of more than 5 mm, a decrease in Tannerella forsythia (T. forsythia) and Treponemadenticola (T. denticola), as well as a decrease in Matrix Metalloproteinases (MMP-8) with subgingival use of erythritol as air polishing powder.[1] A significant drop in P. gingivalis levels was also noted in another study after one month in the group treated with erythritol air-polishing as opposed to SRP.[2] Contrarily, other investigations have found that glycine/erythritol air-polishing produces comparable or inferior clinical results than SRP.[3]

The absence of bacteria does not, however, support the function of adding chlorhexidine to erythritol. Furthermore, it hasn't harmed the delicate tissues in any way. When used in SPT, air polishing devices are safe and efficient at removing biofilm in a manner similar to traditional therapy, according to a systematic review and meta-analysis.[4] The key benefit of air polishing in supportive periodontal therapy, according to the study, is that it doesn't impair the soft tissue, tooth structure, or root structure. Additionally, it takes less time and has better patient compliance. In a recently completed retrospective investigation, low abrasive air powder glycine during SPT produced clinical results that were just as effective as traditional mechanical debridement.[5]

According to the consensus report, oral hygiene reinforcement and conventional non-surgical mechanical therapy are the recommended treatments for peri-implant mucositis. With the help of this treatment, PPD will be reduced by roughly 0.5–1.0 mm and BOP by 15–40%. However, NSPT for peri-implantitis typically reduces BOP by 20–50% and, in some cases, results in a 1–mm pocket decrease. With mechanical plaque management, however, complete disease remission in advanced instances is improbable. Mechanical plaque control is still a key component of the management of peri-implant disease or of supportive therapy after implant implantation. The air-polishing device has demonstrated a positive therapeutic outcome for peri-implant mucositis or peri-implantitis, according to the consensus statement from 2016. When glycine powder was administered as monotherapy or an additional intervention after non-surgical management of

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peri-implant mucositis or peri-implantitis, a substantial decrease in BOP and bleeding index was seen. Additionally, studies have demonstrated a statistically significant benefit for the treatment of peri-implant disorders using an air-polishing device and either glycine or erythritol.[6] Studies, however, have found either a similar benefit or none at all over SRP.[7]

The GBT approach may be superior than the traditional forms of prophylaxis in the following ways:

1. An operator can assess if a patient is following recommended oral hygiene practises by using a plaque disclosing agent. Additionally, it enables the patient to see neglected areas;
2. When removing subgingival plaque, air-polishing devices are more effective and safe than traditional rubber cups at removing the revealed plaque without harming sensitive tissue;
3. A clearer view of calculus deposits is made possible by air polishing, which removes plaque before ultrasonic scaling. The operator can now focus on using ultrasonic scalers on areas with mineralized deposits rather than using them randomly across the entire dentition. This reduces CAL and soft tissue damage from ultrasonic scaling at locations with shallow pocket depths. This corresponds to less pain and sensitivity felt during ultrasonic scaling from the patient's perspective.
4. A second plaque disclosure gives the patient and the operator quality control and assurance, which reduces the overall length of the procedure.

## 1. Limitations and Future Recommendation

Patients who perceive less discomfort during periodontal therapy respond better to GBT with glycine or erythritol powder. Periodontal therapy appears to be more well-liked by patients since it requires ongoing monitoring, reevaluation, and supportive treatment. Applying a disclosing agent makes it much simpler to see the plaque, which improves time management while providing additional ergonomic advantages and less fatigue. However, similar to SRP, the procedure's efficacy begins to decline after three months. As a result, a long-term study should be done to evaluate the clinical outcome in addition to the biochemical and microbiological examination. Its impact on individuals with systemic diseases is also weak, thus a long-term evaluation is necessary.

Similar to this, glycine powder has successfully reduced bleeding upon probing and bleeding index in peri-implant disorders. Studies on the non-surgical therapy of peri-implantitis have demonstrated clinical outcomes that are comparable to or worse than SRP. Therefore, a long-term study including biochemical and microbiological evaluation should be carried out to give information regarding the potential improvement in clinical result. The use of glycine powder was highlighted as having some limitations in a few of the consensus publications on periodontal and periimplant disease.

## 2. Conclusion

Based on the available data, it can be said that GBT is a useful tool for eliminating biofilm from the area around teeth or implants. In non-surgical or supportive periodontal therapy, GBT was observed to have higher patient compliance and lower pain perception than SRP. Although it does aid in the reduction of plaque in peri-implant diseases, its use as monotherapy requires more research with long-term studies because the clinical outcome is transient.

## 3. Conflict of Interest

None.

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