Title of your FACT summary and commentary (not the title of the paper): Further evidence is needed to assess the effectiveness of the use of essential oils as adjuncts following scaling and root planing

Authors Azad MF, Schwiertz A, Jentsch HFR.
Title: Adjunctive use of essential oils following scaling and root planing –a randomized clinical trial
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Aim: To assess the effect of the use of mouthwash containing essential oils as adjuncts on clinical outcomes following scaling and root planning (SRP)

Design: Randomized, double-blind, placebo-controlled, parallel-group study

Setting: Private dental practice, Hamburg, Germany

Participants: Males and females aged between 40 and 65 years old with a history of generalized moderate chronic periodontitis

Intervention: The active intervention comprised three essential oils (*Cymbopogon flexuosus*, *Thymus zygis*, and *Rosmarinus officinalis*) with hydrogenated castor oil as emulsifier. The placebo intervention was composed of emulsifier and water. Participants used the interventions (5 drops in a glass of water) as mouth rinse for one minute twice daily for two weeks following SRP. Chlorhexidine gluconate mouthwash was used as co-intervention in both groups.

Main outcome measures: Probing depth (PD), attachment level (AL), bleeding on probing (BOP) and modified sulcus bleeding index (SBI)

Main results: At six months, AL was significantly improved with essential oils compared with placebo ($p < 0.001$). At three months, numbers of *Treponema denticola* and *Fusobacterium nucleatum* were significantly decreased with essential oils compared with placebo ($p = 0.04$ and $p = 0.03$ respectively).

Authors' conclusion (quote from original): "adjunctive use of a mouthrinse containing essential oils following SRP has a positive effect on clinical variables and on bacterial levels in the subgingival biofilm"

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Commentary

Azad and colleagues [1] have reported the results of a clinical trial showing beneficial effects of the use of essential oils on some clinical outcome measures in patients with chronic, moderate periodontitis after SRP at three and six months respectively. No adverse events were observed. The interventions were well described, and methods used for randomization and blinding of outcome assessors are well reported. However, the authors do not provide information on whether the active and placebo interventions were identical in colour, shape, and appearance, thus casting doubt on whether the care providers and participants were blinded. In addition, the authors did not report the procedure used to achieve allocation concealment.

Amongst all the outcomes, only AL variable was significantly improved at six months in the intervention group compared with placebo. Though the study appeared adequately powered for the primary outcome (PD), it was not powered to detect changes in the other variables reported. Consequently, the results reported for such variables may be misleading [2]. Prior to randomization and treatment allocation, the authors could have collected data on other variables that can impact outcomes in periodontitis, such as alcohol intake [3,4]; smoking is not the only risk factor that can influence outcomes following SRP. The authors did not report whether there were differences in the dietary and lifestyle habits of study participants after SRP.

Though the results of the study appear to show beneficial effects of essential oil as an adjunct following SRP, the methodological flaws and lack of control for other confounders impugn the validity of the trial results. More trials with larger sample sizes and better methodology are required for a more accurate assessment of the effect of this therapy.

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Conflict of interest: None

References

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