Quadrant Scaling and Root Planing Has Similar Clinical Outcomes, Fear, Anxiety, and Pain Compared with Full-Mouth Disinfection

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Background
Nonsurgical treatment options for patients with moderate periodontitis include traditional scaling and root planing performed via quadrants at weekly intervals (SRP-Q) or full-mouth disinfection (FMD) to prevent local reinfection of treated sites. Current evidence suggests that clinical outcomes are similar for SRP-Q and FMD. However, differences in fear and anxiety among patients undergoing SRP-Q compared with FMD are unknown.

Clinical question
In patients with moderate chronic periodontitis, does one-stage full-mouth disinfection compared with scaling and root planing by quadrant impact fear, anxiety, and pain?

Summary of methods and results
A 6-month randomized clinical trial was conducted in Brazil to evaluate differences in clinical outcomes (probing pocket depth [PD], clinical attachment level [CAL], plaque index [PI], gingival index [GI]), fear, anxiety, and pain among patients with moderate periodontitis treated with SRP-Q or FMD. There were no significant differences between SRP-Q and FMD in fear, anxiety, pain, or clinical outcomes.

Critical appraisal
This study was adequately designed and powered to detect differences between SRP-Q and FMD. However, there are methodologic uncertainties regarding blinding, recall bias, and measurement of fear and anxiety. In addition, other studies report conflicting results regarding pain resulting from FMD.

Practical implications
Given that this study reports similar clinical outcomes as well as similar levels of fear, anxiety, and pain for both SRP-Q and FMD, patient preferences should be considered, especially in regard to time constraints and compliance in completing the therapies.

Evidence summary

Background
Nonsurgical treatment options for patients with moderate periodontitis include traditional scaling and root planing performed via quadrants at weekly intervals (SRP-Q) or full-mouth disinfection (FMD) consisting of full-mouth SRP in two 60-minute appointments within 24 hours, including irrigation with 1% chlorhexidine (CHX) gel after scaling, tongue brushing with 1% CHX gel for 1 minute, and mouthwashes with 0.12% CHX for 30 seconds at the beginning and at the end of each session, with the last 10 seconds involving...
gargling, and twice daily 0.12% CHX mouthwash for 2 weeks. FMD is intended to prevent local reinfec-
tion of treated sites. Current evidence suggests that
clinical outcomes are similar for SRP-Q and FMD,1–4 al-
though a recent systematic review and meta-analysis
demonstrated that FMD had modest clinical benefit
when compared with SRP-Q.5 However, more post-
operative pain has been reported with FMD.6,7 Little
research has been conducted to evaluate differences
in fear and anxiety among patients undergoing SRP-
Q compared with FMD. The authors of this study
hypothesized that patients undergoing FMD have in-
creased pain, fear, and anxiety due to the short time
frame of the procedure.

Clinical question
In patients with moderate chronic periodontitis, does
one-stage full-mouth disinfection compared with scal-
ing and root planing via quadrants impact fear, anxiety,
and pain?

Methods
A 6-month randomized clinical trial was conducted
with patients recruited from the Dental School of the
Federal University of Minas Gerais and the University of
Taubaté, Brazil. A sample size calculation (80% powered
and a 5% significance level) indicated that a minimum
of 36 patients per group was needed to detect a sig-
ificant difference between groups. Assuming a 20%
dropout rate, 90 patients were randomized (via con-
cealed envelope) into two treatment groups: SRP-Q (n
= 45) and FMD (n = 45). The SRP-Q or FMD treatments
were performed by four periodontists. At baseline
and 6 months posttreatment, periodontal assessment
(probing pocket depth [PD], clinical attachment level
[CAL], plaque index [PI], and gingival index [GI]) was
conducted by two blinded and calibrated examiners,
and fear and anxiety were assessed via validated ques-
tionnaires conducted by three examiners. At the end
of the treatment procedures (after 24 hours in the FMD
group, and after 30 days in the SRP-Q group), pain was
evaluated via a validated visual analog scale.

Results
Among the 90 patients enrolled in the trial, eight were
lost due to incomplete adherence to treatment, and
four were lost due to inadequate responsiveness to
the questionnaires. The final sample consisted of 37
in the SRP-Q group and 41 in the FMD group. The au-
thors report that there were no significant differences
between treatment groups with respect to sex, level
of education, household income, age, and smoking.
At baseline there were no statistically significant dif-
f erences between the SRP-Q and FMD groups with
 respect to PD, CAL, PI, or GI. Thus, both groups were
similar at the start of the trial.

At the completion of treatment, there were no statis-
tically significant differences in pain based on the treat-
ment modality. At the 6-month evaluation, there were
no statistically significant differences in fear, anxiety, or
clinical outcomes.

Conclusion
The authors concluded that in patients with moderate
chronic periodontitis, SRP-Q and FMD provided peri-
odontal clinical improvements and similar experiences
of fear, anxiety, and pain.

Critical appraisal
This study was evaluated using the CASP Randomized
Controlled Trial Checklist.8 The study addressed a fo-
cused topic and was adequately powered to detect
differences between the SRP-Q group and the FMD
group, in spite of a number of patients dropping out
from each treatment group during the 6-month course
of this study. Although patients were randomized and
the examiners were blinded, allocation to treatment
groups was not concealed, as one of the investiga-
tors was aware of the treatment group to which each
patient was assigned. Due to the nature of the inves-
tigation, it was not possible to blind the patients or
clinicians performing the treatments. It is unclear if the
investigator who conducted the statistical analysis was
blinded, or the three examiners who conducted the
questionnaires to assess fear and anxiety. Both groups
were similar at baseline and were treated equally
throughout the study. All the patients who entered the
trial were accounted for.

Pain was measured after completion of treatment,
rather than at the end of each appointment, which may
have allowed recall bias (a patient’s ability to accurately
remember and report the past event) to impact the re-
sults. Fear and anxiety were only evaluated 6 months
posttreatment, rather than at the end of each appoint-
ment. Studies have shown that anxiety levels can de-
crease during the course of periodontal treatment,9,10
so it is possible that evaluation of pain after each visit
could have provided different results.
Although the authors report no statistically significant differences in fear, anxiety, or pain among the groups, no confidence intervals were provided, making it difficult to assess the precision of the effects. Although sample size was calculated a priori, there is a lack of clarity in how the sample size was calculated. Errors in sample size calculations may lead a study to be underpowered and prevent the ability to detect differences. This may be why the results of this study differ from other similar studies that did demonstrate a difference.

The tools (questionnaire and analog scale) used to collect data on fear, anxiety, and pain included continuous measurements. However, rather than evaluating these data as a continuous measure, the authors grouped the results for each group into two clusters, with one cluster consisting of individuals with greater fear and anxiety and another cluster consisting of individuals with lower fear and anxiety. This led to a forced dichotomous assignment of continuous data. The data would have been more meaningful, or at least easier to interpret, if an evaluation of the continuous data, perhaps through analysis of mean differences between the groups with a corresponding confidence interval, was performed to provide a better understanding of the magnitude and precision of the effects.

**Practical implications**

The results of this study suggest that SRP-Q and FMD result in similar clinical outcomes as well as similar levels of fear, anxiety, and pain, all of which are patient-oriented outcomes. However, prior studies have indicated that FMD may result in increased pain. Methods used to evaluate pain in this study may have allowed recall bias to impact the results, so additional studies are necessary to better understand difference in patient-reported pain. Other studies report that FMD may increase patients’ adherence due to a decreased time commitment to complete the treatment plan. When considering SRP-Q vs FMD, patient preferences should be considered, especially in regards to time constraints and compliance in completing the therapies.

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**References**