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study

How periodontitis stage and grade affect benefit of regular supportive periodontal care

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Background

Supportive periodontal care (SPC) has been proven to be of great importance in preserving periodontal treatment outcomes. However, the need for SPC varies significantly among patients because of potential periodontal breakdown and tooth loss. Some patients might need to re-enter an active phase of therapy (non-surgical and/or surgical) to control the disease progression and mitigate tooth loss.

The latest (2018) classification of periodontal diseases and conditions provides staging and grading criteria based on severity of disease and risk of progression, which can aid in predicting periodontal breakdown following treatment.

Previous studies have investigated factors that could influence disease recurrence, aiming to facilitate more personalised maintenance care. However, only a few studies have investigated the need for additional active therapy (non-surgical or surgical) and possible factors of importance. Furthermore, studies focusing on health economics have presented ambiguous results in terms of the cost-effectiveness of SPC.

It seems reasonable to assume that the severity and complexity of periodontitis and its treatment in a specific patient will correlate to this patient's need for active therapy under SPC. Stricter SPC may therefore be cost-effective in controlling the disease and mitigating tooth loss.

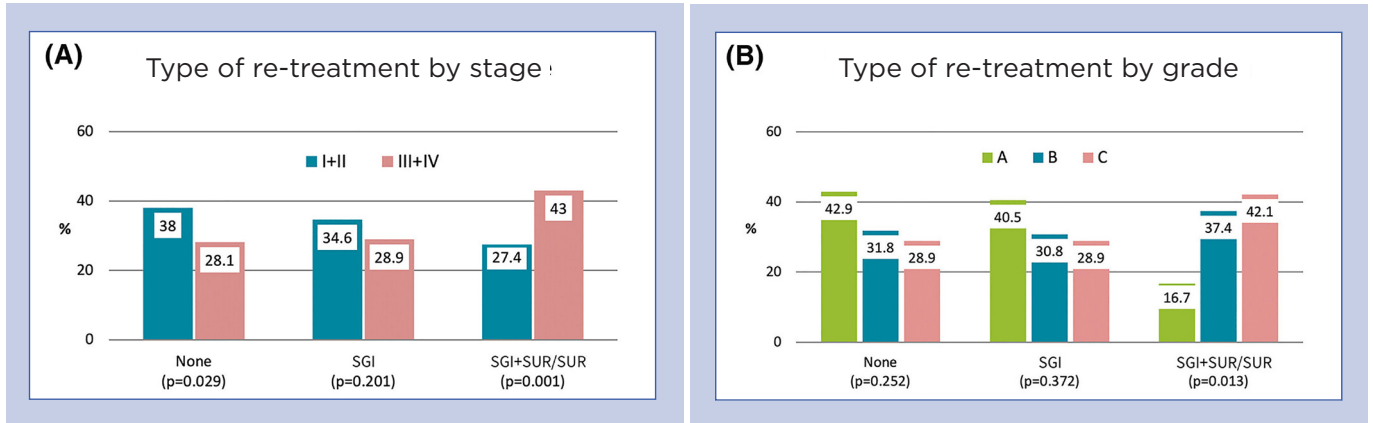
Aim

To evaluate periodontal stability or breakdown during SPC, identify possible influencing factors, and assess the cost-effectiveness of SPC.

Materials & methods

- Retrospective study from records of patients who had received active periodontal therapy (APT) at least 10 years earlier.
- The following factors were assessed for their possible impact on the incidence of additional sub-gingival instrumentation (SGI) and/or surgery (SUR) during SPC: follow-up duration, the age of the patient, gender, stage and grade of periodontitis, smoking status, diabetes, and number and frequency of maintenance visits per year.
- The maintenance calculation accounted for the mean number of maintenance visits per year in the five-year period before SGI or SUR, the variation of maintenance visits per year, and the total number of maintenance visits over the follow-up period.
- The total cost for periodontal treatment was a sum of all fees for SGI, SUR, and SPC. A fee was incurred for every extraction, and it was assumed that every lost tooth was replaced by an implant which also had an associated cost. Costs for the procedures were the customary fees for student providers in the study institution.
- Multiple binary logistic regression models were used to identify which factors were significantly associated with incidence of additional SGI/SUR during SPC.
- Kaplan-Meier survival and Cox regression methodology were used to determine the impact of the above-mentioned variables on the timing of the second SGI/SUR.

Figure: Type of re-treatment provided based on initial stage and grade.



Results

- A The data from a total of 442 patients (250 compliers and 192 non-compliers) were retrieved, with an average follow-up of 22.7 +/- 6.7 years (range: 10.1-48.3 years).
- 62% of stage I and II patients and 72% of stage III and IV patients required further treatment following APT (figure A).
- 57.2% of grade A, 68.2 of grade B, and 71% of grade C patients required further treatment following APT (figure B).
- 56.5% of SGI patients and 78.6% of SUR patients received a second intervention.
- SUR patients received significantly more SUR during the follow-up period (p=0.035).
- Stage III and IV patients received significantly more SUR during SPC than stage I and II patients (p=0.001).
- Grade C patients received significantly more SUR during the follow-up period (p<0.05).
- Regularity of maintenance, smoking, and diabetes were related to a higher chance of receiving SUR during the follow-up period (p<0.05).
- The mean cumulative costs indicated recurrence costs were lower for compliers in stage III and IV or grade B and C but not for those in stage I and II or grade A.

Limitations

- The retrospective design means the sample size was predetermined, potentially introducing information and selection biases.
- The included population may not be representative of the global population, limiting the generalisability of the results.
- Health-economic aspects and cost-benefit analyses are restricted to the specific environment/settings of this study, limiting wider applicability.

Conclusions & impact

- About two-thirds of patients receiving long-term SPC required further active treatment.
- The likelihood of relapse increases with more advanced stages or grades of periodontal disease, non-adherence to recommended care, the specific approach taken during active treatment, and factors such as smoking and diabetes.
- While maintaining a high level of patient compliance was essential for averting tooth loss, it was not cost effective for every patient.
- The total cost of treatment was lower for compliers in stage III/IV and grade B/C patients compared with non-compliers with the same severity and risk.
- Patients in stage I or II and grade A may financially benefit from fewer maintenance visits, with a minimum of one visit per year.
- Patient education regarding the importance of adhering to SPC is of paramount importance, particularly for stage III/IV and grade B/C patients. Increased patient compliance leads to fewer treatment needs and is more cost-effective over time.



JCP Digest 122, published in March 2024, is a summary of "The benefit of regular supportive periodontal care in terms of re-treatment and cost is modified by the severity and complexity of periodontitis". *J Clin Periodontol.* 2024; 51(02):169-176.
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