

Topical intra-pocket anaesthetic gel reduces the risk and intensity of pain during periodontal scaling and root planing and probing

Abstracted from

Wambier LM, de Geus JL, Chibinski AC, Wambier DS, Rego RO, Loguercio AD, Reis A.

Intra-pocket anaesthesia and pain during probing, scaling and root planing: a systematic review and meta-analysis. *J Clin Periodontol* 2016; **43**: 754-766.

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Question: Does intra-pocket anaesthesia compared to a placebo influence the pain during probing or SRP in adult patients?

Data sources Medline, Scopus, Web of Science, LILACS, BBO, Cochrane Library, SIGLE, ProQuest Dissertations and Theses, Periódicos Capes Theses, Current Controlled Trials, International Clinical Trials Registry Platform, the ClinicalTrials.gov, Rebec (www.rebec.gov.br), EU Clinical Trials Register (www.clinicaltrialsregister.eu), abstracts of the annual conference of the International Association for Dental Research (IADR) and its regional divisions. Reference lists of primary studies and related articles from PubMed.

Study selection Randomised controlled trials, parallel, crossover or split-mouth designs comparing intra-pocket anaesthesia with an anaesthetic gel with placebo in patients requiring periodontal probing or SRP were considered.

Data extraction and synthesis Two authors shortlisted 11 final articles based on the inclusion criteria. Data extraction was performed by three authors using customised forms after calibration. The risk of bias in the included studies was evaluated using the Cochrane collaboration tool for assessing risk of bias in randomised controlled trials.¹

Results The authors used VAS and Heft-Parker scale to measure pain intensity and reported Hedge's *g* standardised difference in the means. The mean reduction in VAS and Heft-Parker scale were - 0.576 (CI = - 0.94 to - 0.22; *p* = 0.002) and - 1.814 (CI = - 3.38 to - 0.245; *p* = 0.023) respectively. This indicates a positive effect of anaesthetic gel in pain intensity reduction. For risk of pain, the authors reported the odds ratio of 0.025 (CI 0.003–0.25; *p* = 0.002). As far as the need for rescue anaesthesia using the same anaesthetic gel and/or injected anaesthetics, the odds ratio was 0.358 (95% CI 0.174–0.736; *p* = 0.005). Both these findings show the efficacy of anaesthetic gel in controlling the risk of pain during SRP and probing.

Conclusions The risk and intensity of pain during probing and SRP as well as the need for additional rescue anaesthesia using the same anaesthetic gel and/or injected anaesthetics is reduced with the application of topical intra-pocket anaesthetic gel.

Commentary

The systematic review by Wambier *et al.*² addressed a focused clinical question 'Does topical intra-pocket anaesthesia compared to a placebo influence the pain during probing, SRP in adult patients?' The authors followed the PRISMA statement checklist^{3,4} for conducting and reporting this systematic review. Overall, the study has been conducted and reported well. The authors did a thorough search of the literature using multiple databases including thesis, dissertations and abstracts. They included RCTs that compared intra-pocket anaesthetic gels to a placebo in assessing the absolute risk of pain (pain present or absent – dichotomous data) and intensity of pain (different degrees of pain using scales such as verbal rating scale, visual analog scale, etc. - continuous data) during probing and/or SRP. The severity of periodontal disease was given by probing depths in most studies, which ranged between 5 mm and 8 mm. They used the widely regarded bias tool by Cochrane Group to categorise the bias in the included studies as high and low risk. They finalised 11 studies to be included in the SR of which nine were considered low bias and hence were quantitatively combined for meta-analysis.

The studies included different formulations and delivery systems (gel, ointment, cream, and transmucosal patches) of topical local anaesthetic gels (Oraqix® – four studies, Emla cream® - one study, experimental anaesthetic gel containing KNO₃, benzocaine and tetracaine in a gel form – two studies, DentiPatch™ – one study, Mucopain® - one study, Oraqix® and Hurracaine® - one study, Emla® and Benzotop® - one study). The time of gel application mostly ranged between 30 seconds and two minutes with two studies waiting for five minutes after gel application to start the procedure. Varying pain scales were used. These contributed to heterogeneity in data. With the exception of one study that investigated the effect of anaesthetic gel on probing, all studies were conducted on SRP in patients with active periodontal disease. The authors calculated the mean difference for pain intensity and odds ratio for risk of pain using appropriate statistical measures to account for heterogeneity among studies. The use of anaesthetic gel was found to be superior to placebo both in pain intensity and risk compared to placebo with statistical significance. However,

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due to significant heterogeneity (different interventions and outcome measures), the effect sizes were not comparable and hence the favourable positive results cannot be attributed equally to all the anaesthetic gels. The need for rescue anaesthesia was decreased significantly and this effect was seen in all studies. These studies did not compare the anaesthetic gel to injectable anaesthetics and authors acknowledge this fact, and the same group recently published another systematic review⁵ answering this question.

Practice points

- Use of topical anaesthetics decreases the absolute pain risk and pain intensity during SRP and probing compared to placebo
- In situations where injectable local anaesthetic is not acceptable by patients due to fear and anxiety or if the anticipated pain is mild to moderate (such as during probing or SRP in mild periodontitis), use of topical anaesthetic gel can be a viable option.

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