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Cryotherapy in Patients With Pulpitis: Efficacy in Postoperative Pain Management

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Objectives One of the most important aspects in endodontics is the management of postoperative pain in patients after a root canal treatment. One of the proposed analgesic methods, the last years, is the use of a cold solution in order to reduce the temperature of the root-canal system. If cryotherapy is effective, it can be a cheap and easy solution in reducing postoperative pain. The aim of this systematic review is to evaluate whether cryotherapy can reduce postoperative pain in patients with pulpitis after endodontic treatment.
Methods A search of MEDLINE-PubMed, conducted up to and including March 2024. A three-stage screening was done, in title, abstract and full-text level, by two independent reviewers. The included literature was also hand searched for relevant studies. To assess the risk of bias Cochrane Collaboration's tool was used. Meta-analysis was conducted with a random-effects and fixed-effects model depending on the heterogeneity between the studies.
Results Three studies involving 417 patients were included in this review and all three were included in the meta-analysis. In all three conventional root-canal treatment was performed as therapy. The overall risk of bias was low. All studies used a visual analog scale (VAS) to measure pain intensity. Patients treated with cryotherapy presented lower means of post-endodontic pain than the control group after 24 hours (mean difference = -0.05([-0.38, 0.27]; p=0.075, I^2=62%), 48 hours (mean difference = -0.04([-0.21, 0.12]; p=0.62, I^2=61%) and 72 hours (mean difference = -0.15([-0.31, 0.01]; p=0.33, I^2=9%).
Conclusions Based on the evidence presented in this systematic review, intracanal cryotherapy application did not significantly reduce postoperative pain 24, 48 and 72 hours after a root-canal treatment. Future clinical trials could investigate whether cryotherapy is an effective analgesic for vital pulp treatment strategies.