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Efficacy of premedication on post-endodontic pain: An umbrella review

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Abstract
AIM. To comprehensively analyze the information generated by earlier systematic reviews of studies on the effect of premedications on post-endodontic pain.
METHODS. The systematic reviews published in the English language until 2023 were searched in the databases PubMed, Google Scholar, and Cochrane Library using the keywords were identified. from inception to August 2023. The methodological quality of the included articles was analyzed using AMSTAR 2 tool and ROBIS tool. The corrected covered area analysis was performed using the GROOVE tool.
RESULTS. A total of *n* = 8 systematic reviews were identified. The included systematic reviews and meta-analyses were conducted in the period 2018 to 2022. Two [25%] out of the eight included studies had meta-analysis. According to the assessment of the AMSTAR 2 tool, one review had high quality, two reviews had moderate quality, two reviews had low quality, and three reviews had critically low quality. ROBIS analysis showed that all the studies had a low risk of bias. The CCA analysis performed with the GROOVE tool showed a high overlap of 11% among all the included studies.
CONCLUSION. Premedication was found to be effective as a means of reduction of post endodontic pain, especially for acute pulpitis. Corticosteroids were generally found to be more effective than NSAIDs. The use of piroxicam or prednisolone would be the premedication of choice. Oral premedication had better compliance and efficacy compared to other routes of administration, although the onset of action and sustenance of the latter was superior.

Keywords: endodontics, NSAIDs, corticosteroids; root canal treatment

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Эффективность премедикации в снижении постэндодонтической боли: обзор литературных источников

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Резюме
ЦЕЛЬ. Провести всесторонний анализ данных, полученных в предыдущих систематических обзорах исследований, посвященных влиянию премедикации на постэндодонтическую боль.
МЕТОДЫ. Были выполнены поиски систематических обзоров, опубликованных на английском языке до 2023 года, в базах данных PubMed, Google Scholar и Cochrane Library с использованием ключевых слов. Поиск охватывал период с начала базы данных до августа 2023 г. Методологическое качество включенных статей оценивалось с помощью инструментов AMSTAR 2 и ROBIS. Для анализа покрытия использовался инструмент GROOVE.
РЕЗУЛЬТАТЫ. Всего было выявлено 8 систематических обзоров. Включенные систематические обзоры и метаанализы охватывали период с 2018 по 2022 г. Из восьми исследований два (25%) включали метаанализ. Согласно оценке AMSTAR 2, один обзор имел высокое качество, два – умеренное качество, два – низкое качество, и три – критически низкое качество. Анализ ROBIS показал низкий риск систематической ошибки во всех исследованиях. Анализ покрытия с использованием инструмента GROOVE подтвердил релевантность данных.
ЗАКЛЮЧЕНИЕ. Премедикация показала свою эффективность в снижении постэндодонтической боли, особенно при остром пульпите. Кортикостероиды оказались более эффективными, чем НПВС. В каче-

стве предпочтительных препаратов для премедикации рекомендовались пироксикам или преднизолон. Пероральная премедикация продемонстрировала лучшее соответствие требованиям пациентов и высокую эффективность по сравнению с другими методами введения, хотя другие способы имели более быстрое начало действия и большую продолжительность эффекта.

Ключевые слова: эндодонтия, НПВС, кортикостероиды, лечение корневых каналов

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INTRODUCTION

Post-endodontic pain is extremely occurring in about 40% of the cases. The pain occurs within 24 hours of treatment and is maximum between 6 to 12 post-treatment hours [1; 2]. Various factors influence the occurrence of post-endodontic pain including existing infection, presence of pre-operative pain, periapical lesions, periodontal inflammation, overinstrumentation, and apical extrusion of debris and irrigants. It has been reported that the intensity of pre-operative pain exhibits a positive correlation with post-endodontic pain intensity [3–5]. Occurrence of post-endodontic pain can inculcate doubts about the success of the treatment, make a patient lose confidence in the dental professional, and may also make him reluctant to accept further treatment.

An array of methods are employed by endodontists to reduce intraoperative and post-endodontic pain encompassing occlusal reduction, use of different file systems, trephination, extirpation, and prescription of pre-treatment medications. The pre-treatment medications or in short, pre-medications, involve the administration of a drug, mostly analgesic which aims to increase the threshold for pain by reducing peripheral and central sensitization [6; 7]. Among the analgesics, Nonsteroidal anti-inflammatory drugs (NSAIDS) are commonly employed owing to their additional antipyretic and anti-inflammatory actions. NSAIDs have been demonstrated as effective for managing pain of moderate to severe intensity with few side effects [2; 8].

Besides analgesics, corticosteroids are also routinely prescribed as pre-medications to reduce the inflammation in the periodontal and periapical tissues. The earliest use of corticosteroids to reduce endodontic pain was recorded by Stewart in 1956 [9].

Despite the fact that ample research has been conducted concerning the use of premedications, their actual utility in the management of post-endodontic pain is yet to be determined. There is also a need to comparatively determine the efficacy of different premedications.

AIM

The present umbrella review aims to comprehensively analyze the information generated by earlier systematic reviews of studies on the effect of premedications on post-endodontic pain. The review would aid in establishing evidence-based guidelines for premedications in endodontic treatment which is the need of the hour.

MATERIALS AND METHODS

The review is PROSPERO registered (CRD42023429629). The present Umbrella review was conducted using Preferred Reporting Items for Overview of Reviews (PRIOR) guidelines [10]. The focus question for the review was: “What is the effectiveness of administering premedication on post-endodontic pain in adults undergoing root canal treatment?”

Search Strategy

The systematic reviews published in the English language until 2023 were searched in the databases PubMed, Google Scholar, and Cochrane Library using the keywords that were identified. from inception to August 2023.

Following MeSH terms, search terms, and their combinations were used:

For the search in “Cochrane Library,” the search terms were as follows: ‘Premedication’ and ‘Postoperative pain or post-endodontic pain’ and ‘Systematic review and/or meta-analysis’

For PubMed and Google Scholar, the search terms were as follows: ‘Premedication’ AND ‘Postoperative pain’ OR ‘Premedication’ AND ‘Post endodontic pain’ AND ‘Systematic review’ AND/OR ‘Meta-analyses.’

Reference lists of the identified systematic reviews were also searched.

Study Selection

The study selection was performed by two reviewers (SW and RR) based on the eligibility criteria. Both investigators discussed all the variant views of the selected search and any disagreement or variant opinion between both investigators was further resolved by the third reviewer (AJ).

The PICOS criteria used for the selection of articles comprised:

Population (P): Adult patients undergoing root canal treatment.

Intervention (I): Premedication with various drugs.

Comparison (C): Placebo or no premedication.

Outcome (O): Postoperative pain scores.

Study (S): Systematic reviews.

Data Extraction and Quality Assessment

Data extraction and quality assessment were independently performed by two reviewers (SW and RR), and any disagreements were further resolved by a third reviewer (AJ). The quality assessment of each

systematic review included was performed using the AMSTAR 2 TOOL [11]. The risk of bias assessment for each systematic review included was performed using the ROBIS TOOL (Risk Of Bias In Systematic reviews and meta-analyses) [12]. The Corrected Covered Area Analysis (CCA) was performed to evaluate the degree of overlap between primary studies in a meta-review using the GROOVE TOOL [13].

RESULTS

Articles Obtained in The Literature Search

A total of 29 potentially relevant titles were identified from the three databases out of which 17 full texts were retrieved after removal of duplicates and screening of abstracts. Nine systematic reviews were excluded because they assessed post-medication along with pre-medication and thus, their outcomes could not be entirely attributed to the latter. Therefore, *n* = 8 systematic reviews were included in the final data analysis. Figure 1 shows the PRIOR flow diagram for the identification and selection of studies in the present systematic review.

General Characteristics of the Articles Selected

All the characteristics of the included studies have been summarized in Table 1 and their pre-medication and outcome-related data is summarized in Table 2 [1–3; 6; 8; 14–16]. The included systematic reviews and meta-analyses were conducted in the period 2018 to 2022. Two (25%) out of the eight included studies had meta-analysis.

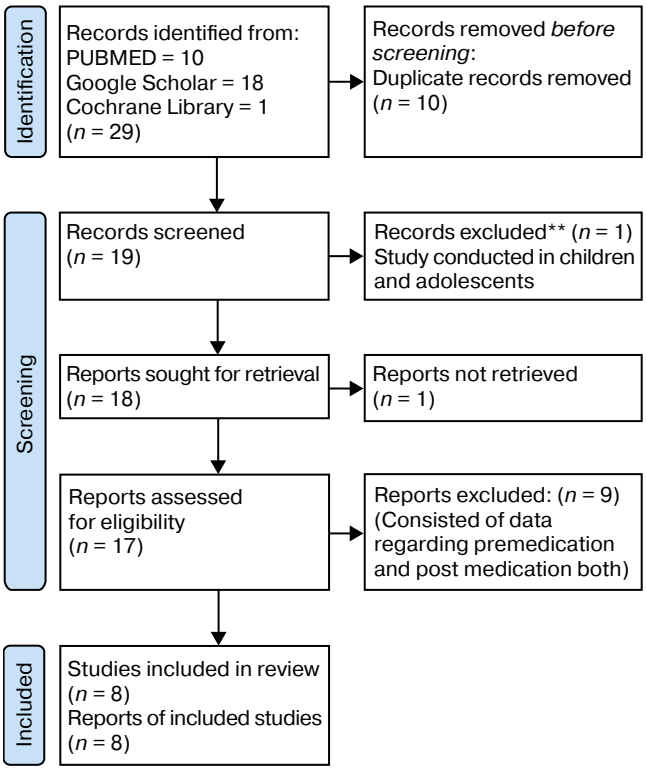

Fig. 1. PRISMA 2020 Flow Diagram for identification of Systematic reviews in the present Umbrella Review

Рис. 1. Диаграмма потока PRISMA 2020 для идентификации систематических обзоров в данном обзоре обзоров

Table 1. Characteristics of the systematic reviews included in the present umbrella review

Таблица 1. Характеристики систематических обзоров, включенных в данный обзор обзоров

Author	Year of publication	Country of origin	No. of trials	No. of participants studied	Average age of participants	Risk of bias assessment tool	Whether meta-analysis is conducted?
de Geus J. et al. (2018) [8]	2018	Brazil	7 [7 qualitative, 6 quantitative]	403	23–50 years	CCROB	Yes
Nagendrababu V. et al. (2018) [6]	2018	Malaysia	16 [16 qualitative, 11 quantitative]	1314	18–64 years	CCROB GRADE	Yes
Nath R. et al. (2018) [14]	2018	Los Angeles, USA	14 [14 qualitative, 9 quantitative]	1462	18–71 years	CCROB GRADE	Yes
Suneelkumar C. et al. (2018) [3]	2018	India	5 [5 qualitative, 5 quantitative]	721	NP	CCROB Tool	Yes
Nogueira B. et al. (2018) [15]	2018	Brazil	5 [5 qualitative, 3 quantitative]	292	NP	CCROB Tool	Yes
Kumar G. et al. (2021) [2]	2021	India	10 [10 qualitative, 8 quantitative]	946	18–65 years	CCROB	Yes
Teja K.V. et al. (2021) [16]	2021	India	6 [qualitative]	333	NP	CCROB	No
Jose J. et al. (2022) [1]	2022	India	5 [qualitative]	556	18–66 years	CCROB	No

Note. CCROB – The Cochrane Collaboration's Risk of Bias Tool

Table 2. Pre-medication related data of the systematic reviews included in the present umbrella review
Таблица 2. Данные о премедикации из систематических обзоров, включенных в данный обзор обзоров

Author	Intervention of premedication with type of drug, dose, route of administration and duration	Control group	Method of assessing postoperative pain along with follow up period	Statistically significant result regarding postoperative pain
de Geus J. et al. (2018) [8]	– IBUPROFEN 200 mg – TENOXICAM 20 mg – IBUPROFEN 600 mg TABLET – IBUPROFEN 400 mg LIQUIGEL – ROFECOXIB 50 mg – DEXAMETHASONE 4 mg – ETODOLAC 400 mg – INDOMETHACIN 25 mg – ZINTONA 2 g	Placebo	– VAS 0-100 – Heft Parker – NRS 0-3 Min. immediately to Max. 72 hours	There is no clear evidence supporting that preoperative ibuprofen is better than other drugs in reducing postendodontic pain
Nagendrababu V. et al. (2018) [6]	– Etodolac 400 mg –Ibuprofen 600 mg – Rofecoxib 50 mg –Ibuprofen tablets 600 mg – Ibuprofen liqui-gels 600 mg – Ibuprofen 400 mg – Diclofenac sodium 100 mg – Prednisolone 30 mg – Tenoxicam 20 mg – Ibuprofen 200 mg – Celecoxib 200 mg – Gelofen 400 mg – Sulindac 200 mg – Celecoxib 400 mg – Zintoma 2000 mg – Tapentadol 100 mg – Ketorolac 10 mg – Gabapentin 600 mg – Lornoxicam 8 mg – Indomethacin 25 mg – Piroxicam 40 mg – Ketorolac 20 mg – Prednisolone 40 mg	Placebo No medication	– 0, 2, 6, 10, 18, 36, 44, 54, 66, 72 hrs on 10 cm or 100 mm VAS scale	Use of piroxicam or prednisolone would be the premedication of choice
Nath R. et al. (2018) [14]	– Intracanal 2.5% Prednisolone paper point – Oral route Prednisolone 2 x 20 mg – Dexamethasone 3 x 4 mg – Prednisolone 30 mg – Intraligamentary inj. 4–8 mg methylprednisolone – Oral route 7 x 0.75 mg dexamethasone – Intramuscular dexamethasone (2,4,6 or 8 mg/ml) – Intramuscular dexamethasone 4 mg/ml – Supraperiosteal injection 4mg dexamethasone – Intraligamentary injection 0.2 ml dexamethasone – Oral route 4 mg Dexamethasone – Oral route 30 mg Prednisolone – Intracanal 0.1 mL of 4 mg/ml Dexamethasone – Supraperiosteal 4 mg Dexamethasone	– Saline – Placebo tablets – Placebo (glucose) – Placebo (dextrose gelatin capsule) – No Treatment Group – Active placebo: 3% mepivacaine intralig. inj. – Active placebo: 2% lidocaine – Passive placebo (empty inj.) – Active placebo: periosteal lidocaine – Active placebos: intracanal 0.1 ml of Ketorolac tromethamine 30 mg/ml – Oral Ibuprofen 600 mg – Active placebo: 1 mg morphine supraperiosteal	– 0–9, 0–10, 0–100 or 0–170 Visual Analog Scale – Numeric rating scale of 0–10 or 0–100. – Intraoperative – A single 24 h evaluation – Multiple evaluations at 4, 6, 12, 24, 48, 72 hours or up to 7 days	Corticosteroids are significant, oral dexamethasone is the most used drug
Suneelkumar C. et al. (2018) [3]	– Prednisolone 40 mg, Oral, 30 minutes preoperatively – Prednisolone 30 mg, Oral, 30 minutes preoperatively – Dexamethasone, Intraligamentary, 0.2 mL (8 mg/2 mL), Before treatment – Dexamethasone, Oral, intramuscularly, intraligamentary, and supraperiosteal, 4 mg/ml, 1 hour preoperatively	– Placebo – Lignocaine – Ketorolac	– VAS 0–100 – VAS 0–10 and scored 1–4 based on pain severity – VAS 0–170, scoring 0–3 based on pain severity – VAS 0–10, converted to percentile – 6 hrs, 12 hrs, 24 hrs and 48 hrs	Single dose corticosteroids like prednisolone and dexamethasone in symptomatic pulpitis cases reduce incidence of postoperative pain after single visit RCT

Table 2 (ending) / Таблица 2 (окончание)

Author	Intervention of premedication with type of drug, dose, route of administration and duration	Control group	Method of assessing postoperative pain along with follow up period	Statistically significant result regarding postoperative pain
Nogueira B. et al. (2018) [15]	– Dexamethasone 4 mg, 1 hour before and 4 hours after the endodontic procedure. – Supraperiosteal injection of 1 mL dexamethasone (8 mg/2 mL) – Supraperiosteal injection of 1 mL of 2% lidocaine. – Intraligamentous injection with syringe containing 0.2 mL 2% lidocaine and dexamethasone (8 mg/2 mL). – Ingestion of 4 mg dexamethasone tablet 1 hour before the endodontic procedure. – Use of 0.1 mL as intracanal medication of dexamethasone (4 mg/1 mL) or tromethamine ketorolac (60 mg/2 mL), oral use of ibuprofen 600 mg	– Placebo tablet taken 1 hour before and 4 hours after the endodontic procedure. – Intraligamentous injection with syringe containing empty cartridge. – Ingestion of placebo Tablet 1 hour before the endodontic procedure	– VAS 0 TO 100 8, 24, 48 hours – Analogue scale and classified as none, mild, moderate, and severe 6, 12, 24, and 48 hours – Visual analogue scale (0–100) after 6, 12, 24, and 48 hours – Visual analogue scale for pain (0–100) in the period of 4, 12, 24, and 48 hours – Visual analogue scale to fill in 6, 12, 24, and 48 hours	Dexamethasone administered in the dose of 4 mg either orally or through intraligamentary route can alleviate postoperative pain, but supraperiosteal injections have better results for up to 24 hours
Kumar G. et al. (2021) [2]	– Ketorolac (30 mg/ml) Buccal Infiltration – Dexamethasone (8 mg/2 ml) Submucosal – Diclofenac potassium 50 mg Oral – Piroxicam (0.4 ml of 20 mg/ml) Intraligamentary – Prednisolone (40 mg) Oral, Prednisolone (30 mg) Oral – Dexamethasone (0.2 ml/4 mg/ml) Intraligamentary – Indomethacin (25 mg), Ibuprofen (400 mg) Oral – Ketorolac (20 mg), Prednisolone (30 mg) Oral – Ibuprofen (400 mg) Oral	– Saline – Placebo – 0.4 ml of 2% lidocaine – 2% Lidocaine (0.2 ml)	– 170 mm HPVAS – 10 cm VAS – 100 mm VAS Min. 2 hours to Max. 72 hours	Preoperative administration of anti-inflammatory drugs is an effective modality for reducing postoperative pain for up to 24 hours in teeth with irreversible pulpitis
Teja K.V. et al. (2021) [16]	– 200 mg of Ibuprofen, 20 mg of Tenoxicam, 10mg of Ketorolac Single dose orally half an hour before the procedure – 400 mg of Celecoxib capsules, single dose orally half an hour before the procedure – 400 mg of Gelofen capsule, 200mg of Novafen capsule, two capsules 60 minutes before the treatment. – 20 mg of tenoxicam capsule, 200mg of liquigel ibuprofen capsule, Single-dose orally before root canal treatment – 600 mg Ibuprofen tablets, 600mg Ibuprofen liquigel, Single dose orally before the treatment – 400 mg of ibuprofen table, 25 mg of indomethacin tablet, Single-dose orally one hour before the procedure	– Placebo half an hour before the procedure. – 500 mg of flour and starch placebo capsules, two capsules 60 minutes before the treatment. – Sugar placebo, Single-dose prescribed orally before root canal treatment – Placebo, Single dose orally before the treatment – Placebo Single-dose orally one hour before the procedure	– 10-point visual analogue scale – 170 mm Heft-Parker VAS – 100 mm Visual Analogue Scale – Baseline, 0, 6, 12, 24, 48, 72 hours postoperatively.	Ibuprofen is the best drug of choice in single visit RCT
Jose J. et al. (2022) [1]	– Piroxicam-20 mg – Dexamethasone-4 mg – Deflazacort-30 mg – Ibuprofen-400 mg – Dexamethasone-8 mg – Ketorolac-20 mg – Prednisolone 30 – Dexamethasone-0.5 mg	– Placebo	– VAS at time intervals of 6 h, 12 h, 24 h – NRS at time intervals of 4 h, 8 h, 12 h, 24 h, 48 h	Corticosteroids are better as premedication than NSAIDs.

Note. VAS = Visual Analog Scale

Quality Evaluation

Quality assessment of all the included studies was performed using the AMSTAR 2 TOOL. According to the assessment of the included studies using the 16 items of AMSTAR 2 TOOL, three studies had 2 critical flaws, two studies had 1 critical flaw, and three studies had no critical flaws. Considering the assessment of non-critical flaws, one study had 4 flaws, two studies had 2 flaws, and five studies had 1 flaw.

The overall assessment of the included systematic reviews and meta-analyses shows, that one study has a high quality, two studies have moderate quality, two studies have low quality and three studies have critically low quality. Figure 2 shows the assessment using AMSTAR 2 TOOL and Table 2 shows the overall assessment.

Risk Of Bias Evaluation

For phase I of the ROBIS analysis, the target PICO question for this umbrella review matched the PICO questions of all the studies. For phase II, all eight included studies showed low concerns in all four domains: (i) the specification of study eligibility criteria and the methods used to identify/select studies (ii) collection of data, and (iii) appraisal of articles. In the last domain of data synthesis and findings, one study showed unclear concern since no sensitivity analysis was performed and the other seven studies showed low concerns. All the eight included studies had a low overall risk of bias in phase III of the tool.

Among all the 8 systematic reviews, 1 has high quality, 2 have moderate quality, 3 have critically low quality and 2 have low quality according to the assessment of quality done using AMSTAR 2 TOOL (Table 3 and Fig. 1). The risk of bias assessment for all the included systematic reviews was performed using ROBIS TOOL and all the studies had low risk of bias (Fig. 3). The corrected covered area analysis was performed using the GROOVE TOOL and a high overlap of 11% was observed (Fig. 4).

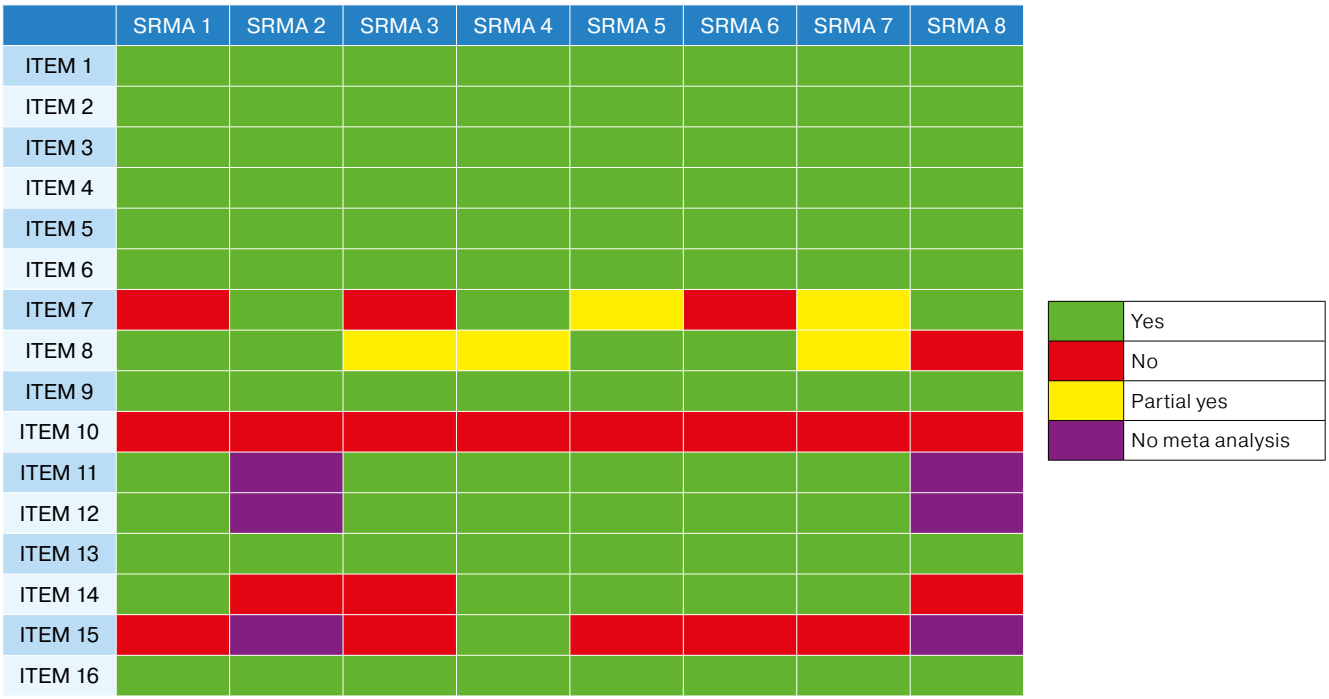

Fig. 2. Quality assessment using AMSTAR 2 TOOL

Рис. 2. Оценка качества с использованием инструмента AMSTAR 2

Table 3. Overall Assessment of the quality of studies using AMSTAR 2 tool

Таблица 3. Общая оценка качества исследований с использованием инструмента AMSTAR 2

Study	Critical flaws	Non-Critical flaws	Overall assessment
1. Kumar G. et al. (2021) [2]	2	1	Critically low
2. Jose J. et al. (2022) [2]	0	2	Moderate
3. de Geus J. et al. (2018) [8]	2	2	Critically low
4. Nagendrababu V. et al. (2018) [6]	0	1	High
5. Nath R. et al. (2018) [14]	1	1	Low
6. Suneelkumar C. et al. (2018) [3]	2	1	Critically low
7. Nogueira B. et al. (2018) [15]	1	1	Low
8. Teja K.V. et al. (2021) [16]	0	4	Moderate

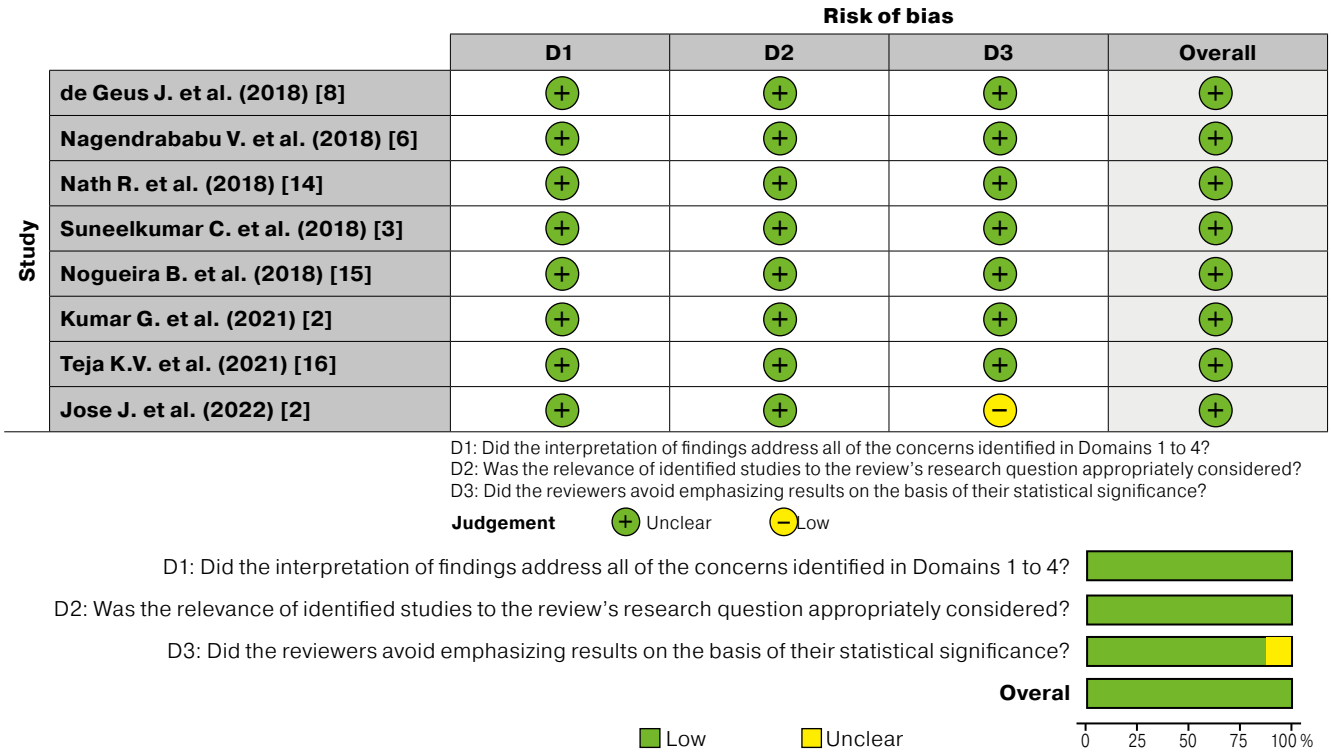

Fig. 3. Risk of bias of the systematic reviews included in the present umbrella review

Рис. 3. Риск систематической ошибки в систематических обзорах, включенных в данный обзор обзоров

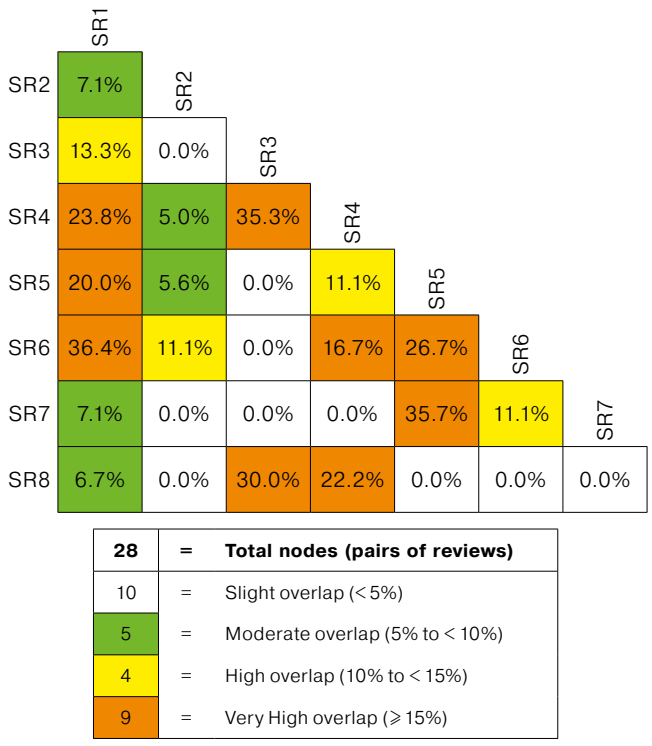

Fig. 4. GROOVE graph pictorially representing the overlap of evidence between the included systematic reviews

Рис. 4. График GROOVE, наглядно отображающий перекрытие данных между включенными систематическими обзорами

Corrected Covered Area Analysis

According to the matrix of evidence,

c [Number of included systematic reviews] = 8

r [Number of index publications] = 39

N [Number of total primary studies, including double counting] = 68

The formula to calculate the Corrected Covered Area is as follows,

CCA = (N-r)/(rc-r)

CCA =10.6% ~ 11%

Since the corrected covered area score is 11% a high overlap of studies is observed.

DISCUSSION

The objective of the present umbrella review was to comprehensively evaluate the impact of various premedications post-endodontic pain based on the findings from systematic reviews of relevant studies. Clinical decision-making should always be dictated by high-quality evidence derived from the consolidation of data from different studies, keeping in mind their strengths and weaknesses. To this effect, an umbrella review would serve to provide high-quality evidence regarding the subject to guide endodontists into adopting suitable premedications in their practice.

NSAIDs and corticosteroids were the most widely used premedications reported with varying levels of effectiveness. NSAIDs, such as ibuprofen and ketorolac, were frequently highlighted for their analgesic potential, with studies generally supporting their effectiveness in reducing pain when administered preoperatively.

NSAIDs are generally considered a first-line option due to their ability to reduce inflammation effectively without adverse consequences [17]. They act by inhibiting cyclooxygenase enzyme which in turn reduces the synthesis of prostaglandin, which is a pro-mediator of inflammation [18].

Conversely, corticosteroids showed substantial efficacy in controlling both immediate and delayed postoperative pain. Dexamethasone and prednisolone were the most commonly used corticosteroids. The analgesic effect of corticosteroids can be attributed to their action on the hypothalamic-pituitary-adrenal axis, which downregulates the inflammatory response, particularly in the periapical and periodontal tissues [19; 20]. Because of this mechanism, corticosteroids prove especially advantageous for patients with periapical lesions who have severe inflammation.

The comparative analysis of premedications across the included systematic reviews revealed that corticosteroids have a superior effect on reducing post-endodontic pain compared to NSAIDs, particularly in the initial 6 to 12 post-treatment hours. A possible reason for this finding is the fact that corticosteroids directly act on the inflammatory cascade in contrast to NSAIDs which act on the mediators. The long-term action (over 24 to 48 hours) was, however, found to be better for NSAIDs indicating a more sustained action of these drugs. According to Nagendrababu et al, corticosteroids were ranked first in the pharmacologic group in reducing pain at 6, 12, and 24 hours [6]. Based on the chemical name, sulindac was superior for 6 hours, whereas piroxicam followed by prednisolone was effective at 12 and 24 hours. Hence, the use of piroxicam or prednisolone would be the premedication of choice.

A possible factor that could confound the efficacy of the premedications is the route of administration. The reviewed evidence suggested that intraligamentary and intramuscular injections of dexamethasone provided more rapid and sustained pain relief as compared to the oral route [2]. Liquid-gel formulations of NSAIDs also had faster absorption rates than the tablets making tāhem more suitable for clinical dental practice. Overall, these findings suggest consideration of the route of administration to tailor the management strategies according to individual needs.

The quality assessment of the included systematic reviews highlighted several methodological flaws in a few studies, which could influence the overall reliability of findings. Although some studies exhibited critical and non-critical flaws, the majority had a low risk of bias, ensuring a fair degree of confidence in their conclusions. Overlap analysis by CCA indicated a moderate level of redundancy in primary studies across systematic reviews, yet this did not significantly detract from the overall quality of evidence gathered.

Overall, the findings of the present umbrella review highlight the importance of selecting an appropriate premedication regimen based on individual patient factors, such as pre-existing inflammation and pain sensitivity. Corticosteroids may be preferred for patients with high levels of inflammation or when immediate pain control is desired. NSAIDs remain a reliable option for moderate pain management, particularly for patients with contraindications to corticosteroids. Clinicians should consider a patient-specific approach, weighing the analgesic and anti-inflammatory benefits of each premedication type against potential side effects and patient history. The analysis of evidence reinforces the fact that premedications, particularly NSAIDs and corticosteroids, play a critical role in reducing post-endodontic pain, thereby enhancing patient comfort and treatment outcomes. With continued research, particularly on newer pharmacologic agents and administration techniques, guidelines for premedications in endodontics can be refined to support evidence-based, patient-centered care. Future studies could focus on optimizing dosage and administration routes, particularly for corticosteroids, to maximize their efficacy and minimize risks.

CONCLUSION

Premedication was found to be effective as a means of reduction of post endodontic pain, especially for acute pulpitis. Corticosteroids were generally found to be more effective than NSAIDs. The use of piroxicam or prednisolone would be the premedication of choice. Oral premedication had better compliance and efficacy compared to other routes of administration, although the onset of action and sustenance of the latter was superior.

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