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Review Article

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Comparative Evaluation of Pain, Anxiety and Physiological Responses Following Intraligamentary Anaesthesia and Mental-Incisive Nerve Block in Routine Mandibular Tooth Extractions: A Literature-Based Comparative Study

GV Reddy[1], GS Prasad Reddy[2], MR Haranadha Reddy[2], I Venkat Krishna[2], Laxmi Shravya[3], Godvine[3], Sarah Fatima[3], Navya Lahari Mahankali[4], Manogna Kolli[4], Ghazala Hussain[4*], Sultan Mohammed Riyaan Zaid[4], Dakshitha[4], Phalguni KN[4], Nabeela Samreen[4], Kovvuri Ramya Reddy[4] and Prathipati Lakshmi Prerana[4]

[1]*HOD and Professor, Oral and Maxillofacial Surgery, Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre, India*

[2]*Oral and Maxillofacial Surgery, Professor, Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre, India*

[3]*Oral and Maxillofacial Surgery, Associate Professor, Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre, India*

[4]*Oral and Maxillofacial Surgery, Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre, India*

***Corresponding author:** Ghazala Hussain, Oral and Maxillofacial Surgery, Panineeya Mahavidyalaya Institute of Dental Sciences and Research Centre, India.. **Email:** ghazalahussain08@gmail.com.

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Abstract

Background: Pain and anxiety are closely interrelated components of dental treatment, particularly during local anaesthetic administration and tooth extraction. Dental anxiety may influence anticipated pain, pain experienced during treatment and post-treatment pain [1]. Local anaesthetic technique therefore plays an important role not only in achieving adequate anaesthesia but also in improving patient comfort and reducing treatment-related anxiety.

Objective: To compare, on the basis of published clinical evidence, the Effects of Intraligamentary Anaesthesia (ILA) and Mental-Incisive Nerve Block (MINB) on injection pain, extraction pain, onset of anaesthesia, dental anxiety, postoperative pain and patient-related outcomes during mandibular anterior and premolar tooth extraction.

Methods: A literature-based comparative analysis was undertaken of published clinical studies, randomised controlled trials, systematic reviews and validation studies relating to dental anxiety, pain associated with dental treatment, intraligamentary anaesthesia, mental-incisive nerve block and mandibular tooth extraction. Particular emphasis was placed on randomised clinical evidence involving mandibular anterior and premolar teeth. The principal outcomes considered were injection pain, extraction pain, onset of anaesthesia, anxiety, postoperative pain, need for supplementary anaesthesia, duration of anaesthesia and patient satisfaction.

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Results: Published evidence indicates that intraligamentary anaesthesia is associated with lower injection pain and shorter onset time compared with conventional regional anaesthetic techniques. In a randomised clinical trial involving 100 mandibular anterior and premolar extractions, intraligamentary injection produced lower mean pain scores than incisive nerve block during both injection and extraction. Mean injection Visual Analogue Scale (VAS) scores were 5.46 for intraligamentary injection and 6.14 for incisive nerve block, while extraction VAS scores were 2.90 and 3.86 respectively [2]. The same study demonstrated a reduction in extraction-related anxiety following treatment, although the difference in anxiety trajectory between the groups was not statistically significant [2]. Other clinical studies comparing intraligamentary anaesthesia with Inferior Alveolar Nerve Block (IANB) have similarly reported significantly lower injection pain, shorter latency and lower anaesthetic volume with ILA, while extraction pain and anaesthetic quality were generally comparable [3,4]. Evidence on MINB indicates it can provide effective anaesthesia for mandibular premolars, although success may vary by tooth position and clinical condition [5-7].

Conclusion: The available literature suggests that intraligamentary anaesthesia represents a useful, localised and patient-friendly alternative for routine extraction of mandibular anterior and premolar teeth. Its principal advantages appear to be reduced injection discomfort, rapid onset and a limited area of numbness. Mental-incisive nerve block remains an effective regional technique, particularly for mandibular anterior and premolar teeth, but its efficacy may vary with tooth type and clinical circumstances. The available evidence does not establish that either technique is universally superior; rather, the literature supports selecting the technique according to tooth position, anticipated surgical difficulty, patient anxiety, required extent of anaesthesia and operator preference. Further adequately powered comparative trials directly evaluating ILA and MINB during extraction are warranted.

Keywords: Intraligamentary anaesthesia, Mental-incisive nerve block, Dental anxiety, Tooth extraction, Injection pain, Extraction pain, Mandibular premolars, Local anaesthesia.

Introduction

Pain and anxiety are among the most important factors influencing the patient's experience of dental treatment. Dental anxiety may cause patients to postpone dental appointments, avoid treatment and develop negative expectations regarding dental procedures. Extraction and local anaesthetic injection are particularly important triggers of anxiety [1,8].

A systematic review and meta-analysis by Lin and colleagues demonstrated a consistent association between dental anxiety and pain across different stages of dental treatment. Their analysis included 35 articles representing 47 clinical groups and found that dental anxiety was associated with expected pain, pain during treatment and post-treatment pain [1]. These findings emphasise that pain control and anxiety management should be considered together rather than as completely independent treatment objectives.

The problem is particularly relevant to tooth extraction. In a study of 1360 adults attending a dental school in Central India, 53.2% of participants were moderately or extremely anxious according to the Modified Dental Anxiety Scale (MDAS), while approximately 83% reported anxiety regarding dental extraction [8]. Previous negative dental experiences were also associated with greater anxiety [8]. Comparable findings have been reported in a South Indian sample of 1148 adults, in which 51.8% were moderately or extremely anxious and tooth extraction provoked more anxiety than any other stimulus assessed [9].

The method of local anaesthetic administration may contribute substantially to the patient's experience. Conventional nerve blocks produce regional anaesthesia but may require a longer onset period and result in extensive soft-tissue numbness. In contrast, intraligamentary anaesthesia provides anaesthetic solution directly into the periodontal ligament surrounding the tooth, producing localised anaesthesia. Mental-incisive nerve block is another relevant technique for mandibular anterior and premolar teeth, providing anaesthesia through deposition of local anaesthetic in the region of the mental foramen and thereby allowing anaesthetic effect through the incisive and mental nerve distributions. Recent evidence has specifically examined intraligamentary anaesthesia against incisive nerve block for mandibular anterior and premolar extraction [2]. This provides an important basis for evaluating whether localised intraligamentary anaesthesia may offer advantages in patient comfort.

Rationale for the Study

The rationale for comparing these techniques rests on four clinically relevant considerations: injection pain, pain during extraction, speed of onset, and dental anxiety and patient comfort. The injection itself may be a major source of dental anxiety. The MDAS was specifically developed to incorporate anxiety associated with local anaesthetic injection, which is an important limitation of earlier dental anxiety scales [10]. The extraction-specific Modified Dental Anxiety Scale for Dental Extraction Procedure (MDAS-DEP) was subsequently developed to assess anxiety specifically related to dental extraction. The scale demonstrated good internal consistency, with a reported Cronbach's alpha of 0.822, supporting its use for extraction-related anxiety assessment [11]. Comparing

the two anaesthetic techniques from both pain and anxiety perspectives is therefore clinically relevant.

Aim and Objectives

Aim

To evaluate and compare the reported effects of intraligamentary anaesthesia and mental-incisive nerve block on pain, dental anxiety, onset of anaesthesia and patient-related outcomes during routine mandibular anterior and premolar tooth extraction, based on available published literature.

Primary Objective

To compare injection pain and pain during mandibular tooth extraction associated with intraligamentary anaesthesia and mental-incisive nerve block.

Secondary Objectives

1. To compare the onset of anaesthesia between the two techniques.
2. To evaluate the effect of the anaesthetic technique on dental anxiety.
3. To compare postoperative pain.
4. To assess the requirement for supplementary anaesthesia.
5. To compare duration of the extraction procedure.
6. To evaluate patient satisfaction.
7. To assess physiological responses such as heart rate and blood pressure reported in relevant literature.
8. To examine the relationship between dental anxiety and pain.

Research Question

Does intraligamentary anaesthesia provide comparable or improved pain and anxiety outcomes compared with mental-incisive nerve block during routine extraction of mandibular anterior and premolar teeth?

Hypotheses

Null Hypothesis: There is no meaningful difference between intraligamentary anaesthesia and mental-incisive nerve block with respect to injection pain, extraction pain, anxiety, onset of anaesthesia or postoperative pain.

Alternative Hypothesis: Intraligamentary anaesthesia provides improved patient comfort, particularly with respect to injection pain and onset of anaesthesia, compared with mental-incisive nerve block.

Literature Review

Dental Anxiety and Pain

Dental anxiety is a common problem and may influence both attendance and the patient's perception of dental procedures [1,8]. Lin and colleagues demonstrated through systematic review and meta-analysis that dental anxiety significantly contributes to expected pain, treatment-related pain and post-treatment pain [1]. A commentary on that review reached the same conclusion, that self-reported dental anxiety is associated with both state anxiety and dental procedure-related pain [12]. Consequently, interventions designed to improve the patient's experience should address both pain and anxiety.

In the Indian population, Acharya evaluated dental anxiety and associated factors and validated the MDAS among patients attending a university dental clinic in Manipal [13]. Previous unpleasant dental experiences were associated with increased dental anxiety. Deogade and Suresan evaluated 1360 adults in Central India and found that more than half were moderately or extremely anxious, with approximately 83% reporting anxiety toward extraction [8]. These findings are particularly relevant to an Indian dental population.

Measurement of Dental Anxiety

The MDAS is a widely used five-item instrument for assessing dental anxiety. It includes a specific question regarding anxiety associated with local anaesthetic injection, making it particularly appropriate for studies involving different anaesthetic techniques [10]. For extraction-specific research, the MDAS-DEP provides an additional instrument specifically addressing anxiety associated with tooth extraction [11]. The use of a validated anxiety scale allows anxiety to be quantified rather than relying solely on subjective clinical impressions.

Intraligamentary Anaesthesia

Intraligamentary anaesthesia involves deposition of a small quantity of local anaesthetic solution into the periodontal ligament space adjacent to the tooth. Its theoretical advantages include rapid onset; localised anaesthesia; reduced volume of local anaesthetic; reduced duration of surrounding soft-tissue numbness; avoidance of extensive regional anaesthesia; potentially reduced injection discomfort; and usefulness as a supplement when conventional anaesthesia is inadequate. A prospective clinical study involving 301 mandibular posterior teeth compared ILA with IANB and found significantly lower injection pain, shorter latency, lower anaesthetic volume and shorter duration of numbness with ILA. However, pain during extraction and anaesthetic quality were not significantly different between the techniques [3]. A randomised clinical trial of 72 patients similarly found lower injection pain with ILA, although the two techniques proved equivalent in controlling pain during routine dental treatment [4]. A randomised controlled trial in children undergoing extraction of primary mandibular molars likewise compared ILA with IANB [14].

These findings Indicate That the Major Advantage of ILA may relate particularly to the administration phase and speed of onset rather than necessarily producing dramatically lower extraction pain in every clinical situation. It should be noted that the trial of

72 patients reported equivalent effectiveness between the two techniques rather than a clear advantage for ILA in treatment pain, and this qualification is reflected in the interpretation below.

Mental-Incisive Nerve Block

The mental-incisive nerve block is relevant to mandibular anterior and premolar teeth because the incisive nerve supplies pulpal structures in this region. Clinical studies have evaluated MINB against IANB, particularly in mandibular premolars. Ghabraei and colleagues evaluated 64 patients with symptomatic irreversible pulpitis and reported a 93.8% success rate with MINB compared with 81.2% with IANB, although the difference was not statistically significant. MINB also demonstrated faster onset and lower injection pain, while post-injection pain was greater during the first four days [5].

A randomised double-blind clinical trial involving 153 patients found success rates of 53% for MINB and 47% for IANB in symptomatic mandibular premolars. Combining MINB and IANB increased the success rate to 82% [6]. More recent randomised evidence involving 120 mandibular premolars found a 70% overall anaesthetic success rate in both groups. Within the MINB group, success was significantly higher for first premolars than second premolars [7]. These findings indicate that MINB can be effective, but its performance may vary according to tooth and clinical condition. The anatomical rationale for this variability has also been examined: articaine infiltration of the mandibular first molar appears to act through a combination of modified mental and incisive nerve block and local infiltration [15], while a primary articaine infiltration in the incisive/mental nerve region of the mandibular second premolar has been assessed for pulpal anaesthetic efficacy [16] (Table 1).

Table 1: Principal studies comparing intraligamentary anaesthesia or mental-incisive nerve block with conventional techniques, with sample size, clinical condition and key finding.

Study	n / Sample	Condition	Key Finding
Ghabraei, et al. [5]	64 patients	Symptomatic irreversible pulpitis, mandibular premolars	MINB success 93.8% vs IANB 81.2%; difference not significant; faster onset and lower injection pain with MINB; greater post-injection pain over four days
Aggarwal, et al. [6]	153 patients	Symptomatic mandibular premolars	MINB 53% vs IANB 47%; combination raised success to 82%
Sülek, et al. [7]	120 mandibular premolars	Symptomatic irreversible pulpitis	70% success in both groups; within MINB, first premolars significantly better than second
Kämmerer, et al. [3]	301 mandibular posterior teeth (266 patients)	Extraction	ILA showed lower injection pain, shorter latency and lower volume; extraction pain and anaesthetic quality comparable
Youssef, et al. [4}	72 patients	Routine dental treatment, mandibular posterior teeth	Lower injection pain with ILA; equivalent treatment-pain control
Orafi, et al. [14]	Primary mandibular molars	Extraction in children	ILA compared with IANB for effectiveness and quality

Direct Comparison of Intraligamentary Anaesthesia and Incisive Nerve Block

The most directly relevant evidence comes from Salem and colleagues, who conducted a randomised clinical trial involving 100 mandibular anterior and premolar teeth indicated for extraction (2). The study compared intraligamentary injection with incisive nerve block using 3% mepivacaine hydrochloride. (Table 2). The difference in injection pain was statistically significant ($p = 0.001$), as was the difference in extraction pain ($p < 0.001$) [2]. Both groups demonstrated substantial reductions in extraction-related anxiety following completion of the procedure. However, the between-group difference in anxiety trajectory was not statistically significant ($p = 0.802$) [2]. This study therefore provides direct evidence supporting the use of intraligamentary injection as a sole anaesthetic technique for selected mandibular anterior and premolar extractions.

Table 2: Reported mean scores from the direct randomised comparison of intraligamentary injection and incisive nerve block in 100 mandibular anterior and premolar extractions.

Outcome	Intrafilamentary injection	Incisive nerve block	p-value
Injection pain (VAS)	5.46	6.14	0.001
Extraction pain (VAS)	2.9	3.86	<0.001
MDAS-DEP after injection	15.68	15.86	Not significant
MDAS-DEP after extraction	10.94	11.26	Not significant (trajectory p = 0.802)

Two points deserve emphasis. First, the anxiety finding is easily misread: both groups improved substantially, so the trial does not show that the technique failed to reduce anxiety, only that it did not do so differently from incisive nerve block. Second, the extraction-pain advantage of 0.96 VAS points, while statistically significant, sits close to the threshold usually regarded as clinically perceptible, so it should be interpreted as supportive rather than decisive.

Comparative Literature Summary (Table 3)

Table 3: Comparative summary of intraligamentary anaesthesia and mental-incisive nerve block across pain, anxiety and practical parameters, with the literature interpretation for each.

Parameter	Intraligamentary anaesthesia	Mental-incisive nerve block	Interpretation
Injection pain	Generally lower	Higher in direct comparison	Favourable evidence for ILA
Onset	Rapid	Rapid but generally longer than ILA	Favourable evidence for ILA
Extraction pain	Low / comparable	Low / comparable	Both can provide adequate anaesthesia
Soft-tissue numbness	Limited, localised	Greater regional numbness	Advantage of ILA
Anaesthetic volume	Lower	Usually higher	Advantage of ILA
Supplementary anaesthesia	May occasionally be required	May occasionally be required	Depends on tooth and procedure
Dental anxiety	Decreases after procedure	Also decreases	No consistent superiority established
Postoperative pain	Generally low	Generally low	Direct evidence limited
Patient satisfaction	Generally favourable	Generally favourable	Good acceptability for both
Clinical applicability	Selected single-tooth procedures	Regional anaesthesia of anterior and premolar region	Selection should be individualised

Illustrative Model Dataset

Important. The values in this section are an illustrative analytical model derived from a synthetic dataset. They are not patient observations and must not be reported as original clinical results. (Table 4)

Table 4: Illustrative model dataset comparing ILA and MINB. Values are synthetic and are presented only to demonstrate the analytical pattern a prospective study might test.

Parameter	ILA	MINB	p-value
Injection VAS	5.49 ± 1.60	6.11 ± 1.53	0.006
Extraction VAS	3.06 ± 1.28	3.28 ± 1.28	0.235
24-hour postoperative VAS	1.44 ± 0.89	1.65 ± 1.00	0.12
Baseline MDAS	11.88 ± 3.75	10.88 ± 3.62	0.055
Post-injection MDAS	11.35 ± 3.93	10.33 ± 3.78	0.062
Post-extraction MDAS	10.56 ± 3.81	9.46 ± 3.71	0.039
Onset time (min)	2.10 ± 0.59	3.19 ± 0.62	<0.001
Extraction duration (min)	5.61 ± 1.82	6.07 ± 2.01	0.094
Patient satisfaction	8.47 ± 0.90	8.26 ± 1.03	0.132

Interpretation of the Model Data

The illustrative dataset demonstrates three principal observations. First, injection pain was lower with ILA, with a difference of approximately 0.62 VAS points. Second, the difference in extraction pain was small and statistically non-significant; the model therefore does not support claiming a clinically important difference in extraction pain between the two techniques. Third, the onset of anaesthesia was substantially faster with ILA, consistent with published clinical studies reporting shorter latency with intraligamentary anaesthesia [2,3]. The model therefore reflects the pattern observed in the published literature: the strongest potential

advantage of ILA is rapid, localised anaesthesia with reduced injection-related discomfort rather than a universal reduction in extraction pain.

Dental Anxiety and Pain

Dental anxiety represents an important component of the patient's experience. In the illustrative dataset, baseline MDAS was not significantly associated with extraction VAS (Spearman's rho = 0.080; p = 0.262). This weak association should not be interpreted as evidence against the established relationship between dental anxiety and pain; rather, it illustrates that anxiety-pain relationships can vary considerably between samples and treatment stages. The systematic review by Lin and colleagues found a consistent relationship between dental anxiety and pain across dental treatment [1], a conclusion echoed in commentary on the same evidence [12]. The Indian studies by Deogade and Suresan [8] and by Appukuttan and colleagues [9] both demonstrate a high prevalence of extraction-related anxiety. Anxiety assessment should therefore remain an important component of clinical evaluation even when a direct statistical correlation is not demonstrated in a particular dataset.

Physiological Responses

Dental anxiety may manifest physiologically through changes in heart rate and blood pressure. For a future prospective clinical study, physiological parameters should ideally be recorded at standardised time points:

a) T0 - Baseline. Heart rate, systolic blood pressure and diastolic blood pressure.

b) T1 - Immediately before local anaesthetic administration.

c) T2 - Immediately after administration.

d) T3 - During extraction.

e) T4 - Immediately after extraction.

Recording these parameters would allow assessment of the physiological response associated with injection and extraction. However, because this is a literature-based study and no original physiological observations were collected, these variables should not be presented as actual findings. The included clinical trials report pain and anxiety outcomes predominantly; haemodynamic data specific to ILA and MINB remain sparse and are a clear gap for prospective work. (Table 5)

Table 5: Proposed standardised time points for haemodynamic recording in a future prospective comparison of ILA and MINB.

Time point	Parameter recorded	Purpose
T0 – Baseline	HR, SBP, DBP	Establish individual resting values before any intervention
T1 – Before administration	HR, SBP, DBP	Capture anticipatory anxiety before needle insertion
T2 – After administration	HR, SBP, DBP	Isolate the physiological response to injection
T3 – During extraction	HR, SBP, DBP	Capture intraoperative stress and adequacy of anaesthesia
T4 – After extraction	HR, SBP, DBP	Record recovery trajectory after completion

Proposed Statistical Framework for Future Clinical Validation

If the literature-based hypothesis is subsequently tested prospectively, the following statistical framework would be appropriate.

Continuous Variables

Mean ± standard deviation should be reported for normally distributed variables; median and interquartile range should be used when distributions are non-normal.

Between-group Comparison

Independent-samples t-test for normally distributed continuous outcomes; Mann-Whitney U test where distributional assumptions are not met.

Categorical Variables

Chi-square test, with Fisher's exact test where expected cell counts are small.

Repeated Measurements

A linear mixed-effects model would be preferable for repeated measures of pain, anxiety, heart rate, systolic blood pressure and diastolic blood pressure.

Correlation

Pearson or Spearman correlation should be used to assess the relationship between baseline anxiety and injection pain, baseline anxiety and extraction pain, and anxiety change and pain change.

Regression

Multiple linear regression could identify predictors of extraction pain, with potential predictors including age, sex, tooth type, baseline anxiety, injection pain, extraction difficulty and anaesthetic technique. A logistic regression model could identify factors associated with supplementary anaesthesia. A p-value of less than 0.05 should be considered statistically significant, with

95% confidence intervals reported wherever appropriate.

Discussion

The principal finding from the available literature is that intraligamentary anaesthesia provides effective localised anaesthesia for dental procedures and may offer specific advantages over regional nerve block techniques when the required field is limited to a single tooth. The trial by Salem and colleagues is particularly relevant because it directly evaluated mandibular anterior and premolar extractions rather than relying solely on endodontic studies [2]. ILA produced lower injection and extraction pain scores than incisive nerve block in that study, and the anxiety reductions observed in both arms confirm that the procedure itself, not the technique, drove most of the improvement in patient-reported anxiety. This finding is consistent with earlier literature comparing ILA with IANB. Kämmerer and colleagues evaluated 301 mandibular posterior teeth and reported significantly lower injection pain and shorter latency with ILA, while extraction pain and anaesthetic quality were comparable [3]. Similarly, Youssef and colleagues reported lower injection pain with ILA while finding equivalent treatment-pain control between ILA and IANB [4].

The literature therefore suggests that the main clinical value of ILA may be its ability to provide rapid, localised anaesthesia with reduced unnecessary tissue anaesthesia. MINB also has an important clinical role. Studies demonstrate that it can successfully anaesthetise mandibular premolars and may provide rapid onset and lower injection pain compared with IANB [5]. However, the success of MINB may vary between first and second premolars and according to the underlying pulpal condition [6,7]. This distinction is important when interpreting the present comparison. A technique that works well for a healthy tooth requiring simple extraction may not demonstrate the same success in a tooth with symptomatic irreversible pulpitis. Evidence obtained from endodontic studies should therefore not automatically be considered equivalent to evidence from extraction studies. The two clinical situations differ in the inflammatory state of the pulp, the depth of anaesthesia required and the duration of the procedure (Table 6).

Table 6: Summary of the strength of evidence for each comparative domain, based on the studies reviewed.

Domain	What the direct evidence shows	Confidence
Injection pain	Consistently lower with ILA in direct and indirect comparisons	Moderate — replicated across studies (2,3,4)
Onset of anaesthesia	Faster with ILA in comparative extraction studies	Moderate (2,3)
Extraction pain	Statistically lower in the direct trial, but close to clinical perceptibility threshold	Low to moderate (2)
Anxiety reduction	Substantial in both techniques; no between-group difference	Moderate (2)
MINB success in pulpitis	Variable by tooth type and pulpal status	Moderate (5,6,7)
Haemodynamic response	Insufficient procedure-specific data	Very low — evidence gap

Clinical Implications

Based on the available literature, ILA may be particularly useful when a single mandibular anterior or premolar tooth is being extracted; when rapid onset is desirable; when extensive lip or tongue numbness is undesirable; when the patient is anxious about prolonged numbness; when a minimally invasive anaesthetic approach is preferred; or when a localised anaesthetic field is sufficient. MINB may remain appropriate when regional anaesthesia is preferred; when several adjacent mandibular anterior or premolar teeth require treatment; when a broader area of anaesthesia is required; or when the operator anticipates that localised periodontal injection may not provide adequate anaesthesia. The choice should therefore be individualised rather than based on a claim that one technique is universally superior.

Limitations

This literature-based study has the following limitations.

9. The number of studies directly comparing ILA and MINB specifically during tooth extraction is limited.

10. Many available studies compare ILA with IANB rather than MINB.

11. Some MINB studies involve endodontic treatment of symptomatic irreversible pulpitis rather than extraction.

12. Different local anaesthetic agents and concentrations have been used across studies.

13. Pain measurement scales vary between studies.

14. Extraction difficulty and tooth type are not uniform across the literature.

15. Anxiety measurement methods differ between studies.

16. The illustrative dataset presented in this study is synthetic and must not be interpreted as original patient data.

17. Because the present work is literature-based, no new patient-level clinical observations can be used to establish efficacy.

18. A formal systematic review and meta-analysis would require a predefined search strategy, duplicate screening, risk-of-bias assessment and quantitative pooling of sufficiently homogeneous studies.

Future Research

A prospective randomized clinical trial directly comparing ILA with MINB in mandibular anterior and premolar extractions would provide stronger evidence. Such a study should ideally use standardized local anaesthetic agents; stratify randomization by tooth type; use a validated anxiety scale; record injection and extraction pain separately; record onset time; document supplementary anaesthesia; record physiological parameters; assess postoperative pain; assess patient satisfaction; use an adequate sample-size calculation; and follow CONSORT reporting principles. The primary outcome should be defined before recruitment, preferably injection pain or extraction pain depending on the principal research question.

Conclusion

The available literature indicates that both intraligamentary anaesthesia and mental-incisive nerve block can provide effective anaesthesia for appropriately selected mandibular anterior and premolar procedures. The most consistent advantage associated with intraligamentary anaesthesia is its localised effect, rapid onset and lower injection-related discomfort. Direct clinical evidence involving mandibular anterior and premolar extractions has demonstrated lower injection and extraction pain with intraligamentary injection compared with incisive nerve block [2]. Evidence concerning mental-incisive nerve block demonstrates that it can provide effective anaesthesia in mandibular premolars, although its success varies with tooth type and clinical condition [5-7].

Dental anxiety should be regarded as an important component of pain management. Published evidence demonstrates that dental anxiety is associated with expected and treatment-related pain [1,12], while Indian studies demonstrate a substantial prevalence of extraction-related anxiety [8,9].The literature therefore supports the following interpretation: intraligamentary anaesthesia represents a valuable localised alternative for routine mandibular anterior and premolar extraction, with particular advantages in rapid onset and injection comfort; mental-incisive nerve block remains a clinically useful regional technique; and current evidence does not justify declaring either technique universally superior. Technique selection should instead be individualised according to tooth type, procedural requirements, anticipated difficulty and patient-related factors. The findings of the present literature-based analysis provide a rationale for further prospective randomised research directly comparing ILA and MINB during mandibular tooth extraction.

Conflict of Interest

None.

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