Title: Critical assessment of search strategies in systematic reviews in endodontics

Author: Ethem Yaylal I et al


Reviewer: Salar Sanjari, DDS

Introduction: This is an overview of literature search strategies in systematic reviews (SRs) published in two endodontic journals, Journal of Endodontics and International Endodontic Journal.

Materials and Methods: PUBMED searched for: “Journal of endodontics”[ta] AND (“systematic review” OR “meta-analysis”) “International endodontic journal”[ta] AND (“systematic review” OR “meta-analysis”). An additional search was performed by using webpages of JOE and International Endodontic Journal. SRs with and without meta-analysis in endodontics were included. Narrative reviews were excluded. Extracted articles analyzed using following questions by two reviewers:

- Did the authors of SRs explicitly report MESH terms and key words used to search for primary studies?
- Did the authors search in at least 2 electronic databases?
- Did the authors report the date of search?
- Did the authors report years covered by search?
- Did the authors report any interface to search in the electronic databases?
- Did the authors search the grey literature, namely information that is not published in easily accessible journals or databases, such as conference proceedings that include the abstracts of research presented at conferences or unpublished theses?
- Did the authors report a complete search strategy?
- Did the authors report a 1- or 2-sentence summary of search strategy?
- Did the authors perform “hand-searching,” which includes searching reviews, textbooks, reviewing the references of the selected studies?
- Did the search strategy include all languages without restriction?
- Did the authors make any attempt to contact the authors

Results:

- 83 records retrieved (55 SRs in JOE, and 28 SRs were in IEJ)
- Two articles were excluded from JOE because they were not SRs -->53 SRs (65%) JOE & 28 SRs (35%) were from IEJ
- No statistically significant difference was found between the 2 journals in terms of overall search strategy assessment elements (P > .05).
- No statistically significant difference was found between the 2 journals in terms of each search strategy element (61 %).
- Of the analyzed 81 SRs, only 1 SR contained all 11 search elements, and 7 SRs (9%) included 10 of 11 questions. The rest of the SRs (83%) included 9 and fewer elements.
- Key words used to search for primary studies were the most frequently included element (97%). Attempt to contact the authors of relevant articles was the most frequently missing element (24%).
- MEDLINE was the most commonly used database
- Authors in 9 SRs (11%) used only 1 electronic database; 22 SRs (27%) used 2 databases, and the remaining 50 SRs searched 3 or more databases.

Conclusion: Authors make following recommendations to search strategies to improve the overall quality of the research:

- No language limitation should be applied to databases
- The dates of search should be reported.
- Grey literature should also be searched for unpublished studies, for example, conference proceedings.
- An attempt to contact authors and experts should be made for further information about unpublished papers

LOE: 5
Title: Root canal treatment versus single-tooth implant: A systematic review of internet content

Author: Rossi-Fedele G et al.


Reviewer: Xiomara Y. Rivera, DMD

Purpose: To evaluate completeness of information available in the Internet with respect to the decision-making criteria in the AAE statement. Also, to assess the accessibility, usability, reliability, and quality of information in the Internet comparing RCT versus STI (Single-Tooth implant)

Introduction: The American Association of Endodontics Implant Position Statement mentions that apart from survival rates, other factors such as restorability of the tooth, quality of bone, esthetics demands, cost-benefit ratio, and systemic factors should be taken into account when between RCT and STI.

Materials and Methods:

- Key word terms: root canal treatment implant were used in 4 search engines (Google, Yahoo, Bing, and Ask.com)
- First 100 webpages of each search engine were evaluated
- Inclusion Criteria: English, information should address at least 1 criterion within the AAE statement
- Exclusion Criteria: videos, advertisements, professional/scientific literature, dental laboratory/supply companies, and forums/blogs.
- To evaluate completeness to the AAE statement, whenever one of the factors was mentioned, a score of 1 to 6 was allocated.
- Webpages were then divided in low, medium, or high quality
- Assessment of webpages for accessibility, usability, reliability, and quality of information were done using LIDA and DISCERN

Results: Twenty-six webpages were evaluated (14 websites from endodontists or general dentists, 10 websites from information resources or magazines, 2 websites from professional association and insurance plan). One webpage had a maximum score of 6 and nearly 33% scored a 1. The most frequent criteria discussed among the web pages was survival rates. Eleven webpages were considered high quality, 7 medium quality, and 1 low quality. Median scores for accessibility, usability, and reliability were 85%, 76% and 37%.

Conclusion: The study demonstrated the scarcity of information available in the Internet with respect to when a tooth should be retained with RCT and when to extract and replace it with and STI.

LOE: 4
Title: Cone-beam computed tomography: Anatomic analysis of maxillary posterior teeth—Impact on endodontic microsurgery

Author: Lavasani S et. Al


Reviewer: Salar Sanjari DDS

Introduction: The study measured and averaged B-L and M-D distances between maxillary per-molar and molar roots. And to measure bone thickness over each root and their proximity to the maxillary sinus using CBCT.

Materials and Methods: One hundred fifty iCAT CBCT scans were used. Exclusion criteria included: More than 1 maxillary posterior tooth missing (excluding 3rd molars), periodontal diseases, C-shape molars, fused roots, resorption of any maxillary tooth, artifacts of any kind impeding identification of anatomic structure, and mix or primary dentition. Two examiners reviewed the scans using the cross-sectional slices in the “implant screen”. Bone thickness measures at 3.6mm from the apex of MB root and 3 mm from the apex for all other roots (range 3.0 to 3.9mm). Females represented 70% and 29% were males. The age range was 13 to 87 years old.

Results: The buccal bone was thinnest over the buccal root of two-rooted first premolars (0.66mm) and the MB root of first molars (0.84). It was thickest over the MB root of 2nd molars (1.24mm). The palatal bone was thinnest over the P root of the maxillary first molar (1.24mm) and thickest over the single rooted 2nd pre-molar (3.26m). The longest distance to complete resection: 2 rooted first and 2nd premolars: 8.81mm; and MB root of the 2nd molar: 7.40mm. The MB root of the 2nd molar had the closest proximity to the sinus floor at an average of 0.66mm

Conclusion: Understanding the anatomy of maxillary posterior is beneficial for root resection.

LOE: 3
Title: Comparative evaluation of mental incisal nerve block, inferior alveolar nerve block, and their combination on the anesthetic success rate in symptomatic mandibular premolars: A randomized double-blind clinical trial

Author: Aggarwal V, et al.


Reviewer: Salome Masrani, DDS

Purpose: Evaluate the effectiveness of the mental incisive nerve block (MINB), inferior alveolar nerve block (IANB), and MINB with IANB in anesthetizing symptomatic mandibular premolars

Materials and Methods: This was a randomized, double-blind clinical trial. The sample group was one hundred fifty-three patients, including 81 men and 72 women between the ages of 19-46 years who reported to the dental emergency department.

- Inclusion Criteria: Carious exposed symptomatic mandibular premolar with signs and symptoms of symptomatic irreversible pulpitis, ASA I or II, Ability to understand pain scale
- Exclusion Criteria: Allergy or contraindication to local anesthetic, Pregnant/breastfeeding, History of drug abuse, Taking medications that could alter pain perception
- Three treatment groups:
  - MINB injection (2ml 2% Lidocaine 1:200,000 epi over 120s), mock IANB (sterile saline)
  - Mock MINB (2ml sterile saline), IANB (2ml 2% Lidocaine 1:200,000 epi)
  - MINB (2ml 2% Lidocaine 1:200,000 epi), IANB (2ml 2% Lidocaine 1:200,000 epi)
- After 10 minutes, teeth were accessed and instrumented after rubber dam placement
- Patient instructed to raise hand if in pain and to rate pain
- Statistical analysis performed

Results: Success Rates
- MINB 53%
- IANB 47%
- MINB + IANB 82%

Discussion: MINB was not significantly more effective than IANB in anesthetizing symptomatic mandibular premolars. Relative reduced success associated with activation of nociceptors (TTX and capsaicin-sensitive TRPV1) through inflammatory mediators by reducing the threshold for activation. These channels can also show resistance to lidocaine. Combination of MINB and IANB leads to a quick onset, as well as longer lasting anesthesia.

LOE: 3
Title: The prognosis of altered sensation after extrusion of root canal filling materials

Author: Rosen E et al

Journal: JOE, Vol. 42(6)873

Reviewer: Aaron Salimnia DDS

Purpose: This study did a systematic review to evaluate the prognosis regarding altered sensation after extrusion of root canal filling materials and the possible factors influencing it

Materials and Methods:

- Used Pubmed, Researchgate and MDLinx
- Inclusion Criteria: Studies reporting the extrusion of root canal filling material during the treatment and altered sensation occurring after root canal procedure
- Articles from 1976 to 2015 were included in the study
- Keywords searched were root canal filling or endodontic and nerve injury or altered sensation
- Variables recorded were patients age, sex, tooth location, type of sealer, obturaton technique, type of nerve injury, time of treatment, preformed treatment, follow up time and reported outcome
- MEDLINE and Scopus were used in this study
- The articles were evaluated by 2 reviewers

Results: All the studies evaluated were case reports except for one which was a case series. Twenty-eight articles met the criteria. Twenty-six patients were females and 5 were males with an average age of 39. Average follow up period of 10 months. In 53% of cases a full recovery was reported, 38% of cases partial recovery occurred and in 9% of cases there was no recovery.

Conclusion: Most cases with lateral condensation fully recovered and no case with vertical condensation recovered. Sixty-two percent of cases with resin sealer fully recovered compared to paraformaldehyde sealer which only recovered in 27% of cases. Seventy-two percent of cases with nerve injury were reported in lower molar teeth followed by 19% in lower premolar teeth. Cases that didn’t fully recover were lower molars and obturation with paraformaldehyde sealer. Nerve injury prognosis is dependent on tooth location, types of extruded materials, obturation technique and treatment after the injury.

LOE: 2
**Title:** Cellular profile and expression of immunologic markers in chronic apical periodontitis from HIV-infected patients undergoing highly active antiretroviral therapy

**Author:** Gama T, et al.

**Journal:** Journal of Endodontics, Volume 42,( 6): 921-927

**Reviewer:** Salome Masrani, DDS

**Purpose:**
Determine if HIV-infected patients being treated with HAART have a similar protection against endodontic infection to non-HIV-infected patients. Antiretroviral therapy is used to treat patients with HIV. Highly active antiretroviral therapy (HAART) is a combination of at least three drugs and function to suppress the replication of the virus. This therapeutic protocol has been shown to reduce the morbidity and mortality of HIV by preserving the patient’s immunologic functions and reducing viral load.

**Additional information:**
Significant Laboratory Values for HIV patients

<table>
<thead>
<tr>
<th></th>
<th>Normal Range (cells/mm³)</th>
<th>Values requiring Dental Modifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Blood Cell Count</td>
<td>4,000-10,000</td>
<td>&lt;2,000</td>
</tr>
<tr>
<td>Absolute Neutrophil Count</td>
<td>1,500-8,000</td>
<td>&lt;1,000</td>
</tr>
<tr>
<td>Platelets</td>
<td>150,000-450,000</td>
<td>&lt;60,000</td>
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<tr>
<td>CD4 Count</td>
<td>590-1,120</td>
<td>&lt;50</td>
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<tr>
<td>Viral Load</td>
<td></td>
<td>No effect on treatment planning</td>
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**Materials and Methods:**
- 34 patients: 17 HIV-infected receiving HAART >18 months, 17 non-HIV-infected, >20 years old, with a non-restorable tooth planned for extraction with chronic apical periodontitis lesion. Exclusion criteria: antibiotic prophylaxis, anti-inflammatory drugs, pregnancy, diabetes, autoimmune diseases, root fractures, endo-perio lesions, previous RCT
- Obtained CD4 counts, viral load, antiretroviral therapy from medical records
- Lesions were obtained through curettage and specimens were sent to Oral Pathology Laboratory and processed for histology and immunohistochemical analyses
- 9 sections from each lesion were analyzed
  - Primary antibodies in immunohistochemical analysis: Anti-IL-6, Anti-IL-18, Anti-CD3, Anti-CD4, Anti-CD8, Anti-CD-20, Anti-CD68, Anti-TNFα, Anti-IFNγ
  - Scores given based on number of positively-stained cells/area: 1. <30% cells stained; 2. >30% cells stained
- Statistical analysis performed with a 5% level of significance

**Results:** No significant difference when comparing HIV-infected patients and non-HIV-infected patients in terms of radiographic size of lesion, frequency of cysts versus granulomas, immunoexpression of inflammatory cell markers. Median CD4 count was 450 cells/mm³ and 82.3% had undetectable viral loads.

**Discussion:** HIV-infected patients undergoing HAART have a no difference in immune capacity when compared to non-HIV-infected patients.

**LOE:** 4