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The level of evidence of articles published in Iranian Endodontic Journal in 3 years (2007, 2012 and 2013)

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Original Article

Abstract

BACKGROUND AND AIM: Endodontists have the opportunity to apply relevant research findings to care their patients using the principles and methods of evidence-based treatment. The best level of evidence can be used to inform decisions regarding care. The aim of this study was to evaluate the level of evidence and study the design of all the articles published in Iranian Endodontic Journal in years 2007, 2012 and 2013.

METHODS: We reviewed all articles published in 2007, 2012 and 2013 in the Iranian Endodontic Journal. These articles were classified according to the level of evidence (LOE) using Oxford Scale from 0 to 5 and type of the study. Statistical analyses were performed using Fisher's exact test. Significant level was set at 0.05.

RESULTS: Frequency of articles with LOE was 117, that 5 papers were level 1 (4.2%), 1 level 2 (0.9%), 10 level 3 (8.5%), 1 level 4 (0.9%), and 3 level 5 (2.5%); 97 articles (83.0%) were identified as LOE 0 or non-evidence. Comparison of the LOE of Iranian endodontic journal in 3 years did not reveal statistically significant differences between the published articles (P = 0.14).

CONCLUSION: It appears that few high level of evidence-based articles have been achieved in 3 years related to endodontic subjects. Hence, journals, authors, and editors should all cooperate to achieve high-LOE articles.

KEYWORDS: Clinical Trials; Dentistry; Endodontic; Evidence-Based; Journal Article

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Sackett et al.[1] defined evidence-based medicine, nowadays termed evidence-based dentistry (EBD), as "the conscientious, explicit and judicious use of current best evidence about the care of individual patients" integrated with clinical expertise and patient values to optimize outcomes and quality of life.[2-7] The concepts of evidence-based treatment, which include the tracking-down of specific scientific evidence, assessing its validity, and using the "best" evidence to inform patient care decisions can affect specialists, general dentists, patients, and employers who purchase insurance packages, insurance companies, and policy makers alike.[8] The American Dental Association defined evidence-based (EB) dentistry as an approach to oral healthcare that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences.[9-10]

This process will allow the researcher or clinician to find the best available evidence related to the treatment of the patient. Best available evidence includes suitable designed randomized controlled clinical trials and systematic reviews.

Suzanne Fletcher and Dave Sackett generated "levels of evidence" (LOEs) for

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ranking the validity of evidence about the value of preventive maneuvers and then tied them as "grades of recommendation" to the advice in the report for the Canadian Task Force on the Periodic Health Examination 20 years ago.[11] These levels have developed over the ensuing years.[10-14] The National Health Service (NHS) Research and Development Centre for Evidence-Based Medicine (RDC) in Oxford, UK, developed an updated version.[8]

Torabinejad et al. searched for clinical articles pertaining to success and failure of nonsurgical root canal therapy, and to assign levels of evidence to these studies. Based on these findings, it appears that a few high-level studies have been published in the past four decades related to the success and failure of nonsurgical root canal therapy.[15]

Shafiei and Shahravan assessed the level of evidence in two leading journals and reported that there were not statistically significant differences between the published articles in two journals.[16]

Asgary et al. evaluated published endodontic articles in PubMed-Indexed Journals from Iran. They found that evidence of articles in the field was insufficient.[17]

These are the most important articles published in journals that provide a higher level of evidence to answer clinical questions here by higher level of evidence than running in the papers.

The aim of this study was to evaluate the level of evidence and study design of all the articles which were published in Iranian Endodontic Journal in years 2007, 2012 and 2013.

Methods

We reviewed all the articles published in years 2007, 2012 and 2013 in the Iranian Endodontic Journal, excluding letters and erratum to rate level of evidence of each article.

The scale used in this study was developed by the NHS Research and Development Centre for Evidence Based Medicine in Oxford, UK (Table 1).

Hence, there were 6 groups as 0, 1, 2, 3, 4 and 5. In-vitro articles, case reports, and technical notes rated according to this scale as non-evidence (LOE 0).

Table 1. Level of evidence (LOE) according to Oxford scale

Code	Study Type
1a	Systematic review (with homogenicity) of randomized clinical trial(s)
1b	Individual randomized clinical trial (with narrow confidence interval)
2a	Systematic review with homogenicity of cohort study
2b	Individual cohort study
2c	Outcome research
3a	Systematic reviews with homogenicity of case-control studies
3b	Individual case-control study
4	Case series (and poor quality cohort and case-control studies)
5	Expert opinion without explicit critical appraisal

Reviewing the articles was done by two researchers and uncertainties were gotten the same opinion. Data extraction consisted of study design, year of publication and level of evidence. Statistical analyses were performed using the SPSS software (version 17.0, SPSS Inc., Chicago, IL, USA) via Fisher's exact test.

Data was analyzed by analysis of variance (ANOVA), post-hoc (Tukey test) and Student's t-test in SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). P-value of less than 0.05 was considered to be statistically significant.

Results

In total, 117 endodontic articles had been published in the Iranian Endodontic Journal in years 2007, 2012 and 2013. When studies were assessed using LOE, 5 papers were level 1 (4.2%), 1 level 2 (0.9%), 10 level 3 (8.5%), 1 level 4 (0.9%), and 3 level 5 (2.5%). Therefore, 97 (83.0%) of the articles were identified as LOE 0 or non-evidence (Figure 1).

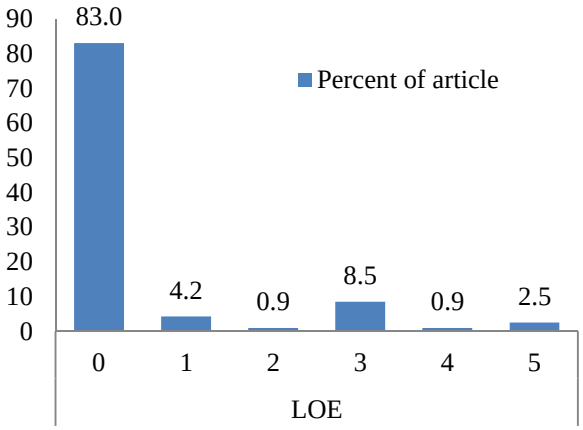

Figure 1. Percentage of articles in each level of evidence (LOE) (0-5)

The publication pattern of the articles related to the study design in different years is demonstrates in table 2. Analysis of the articles showed that very few high-level studies had high level of evidence.

Comparison of the LOE of Iranian Endodontic Journal in 3 years did not reveal statistically significant differences between the published articles (P = 0.14).

Discussion

Evidence-based dentistry is an emerging perspective to insure that the best available scientific evidence is integrated in clinical practice for the maximal benefit of each individual patient. It is focused on identifying the statistically and clinically significant findings from randomized clinical trials. The successful opinions and experiences of dentistry rely on a vast spectrum of dental subjects, which ranges from materials research to observational studies.[9]

In this study, we found that the number of published non-evidence articles (in-vitro, case reports, and expert opinion) in Iranian Endodontic Journal were considerably more than highly-evident articles (systematic review and clinical trial) published in the journal. This difference in 2012 and 2013 was more than 2007. Thus, there are more published papers in "Iranian Endodontic Journal" which cannot be used as answers of clinical questions of clinicians in recent years in comparison to past.

Table 2. Frequency (n) and relative frequency (%) of different study designs of Iranian Endodontic Journal in studied years

Year	2013	2012	2007	Total
	Number (%)	Number (%)	Number (%)	Number (%)
In-vitro	22 (46.8)	22 (57.9)	20 (62.5)	64 (54.7)
Randomized Clinical Trial	3 (6.4)	1 (2.6)	1 (3.1)	5 (4.2)
Cohort	0 (0.0)	0 (0.0)	1 (3.1)	1 (0.9)
Cross-Sectional	5 (10.6)	0 (0.0)	3 (9.4)	8 (6.8)
Case-Report	11 (23.4)	10 (26.3)	4 (12.5)	25 (21.3)
Quasi-Experimental	2 (4.2)	0 (0.0)	0 (0.0)	2 (1.7)
Animal Study	0 (0.0)	1 (2.6)	3 (9.4)	4 (3.5)
Review	3 (6.4)	1 (2.6)	0 (0.0)	4 (3.5)
Systematic Review	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Case Series	1 (2.1)	0 (0.0)	0 (0.0)	1 (0.9)
Editorial	0 (0.0)	3 (7.9)	0 (0.0)	3 (2.5)
Total	47 (100.0)	38 (100.0)	32 (100.0)	117 (100.0)

Shafiei and Shahravan searched the level of evidence in articles of International Endodontic Journal and Journal of Endodontics.[16] In that study, 83.6% of the articles were classified as non-evidence. Therefore, we can see identical percentages of non-evident articles published in Iranian Endodontic Journal with those two leading endodontic journals.

Lau and Samman reported that 50% of articles in oral and maxillofacial surgery journals were non-evidence.[14] Besides, Kyzas confirmed that oral and maxillofacial surgery literatures lack high-quality evidence articles.[19]

Proescholdt et al. performed electronic database searches on MEDLINE, CANCERLIT, and EMBASE in the field of brain tumor resection. They showed that there was not published high-LOE articles.[18]

Torabinejad et al. searched for clinical articles relating to various endodontic treatment, in endodontic journals and evaluated the levels of these studies. They found that, few high-level of evidence studies had been published in these journals.[7,15,20]

EBD should be included as a core competency in learning critical care dentistry, and its instruments. Obviously, there will always be situations in which we have to make decisions with insufficient data. Far from being frustrating, these dilemmas should be an opportunity for integrating collective and individual experience and clinical expertise.[21]

In EBD, critical appraisal of articles is crucial step to accept a research result as the answer of clinical question. There are some papers published about the qualification of clinical trials published by Iranian authors in the field of dentistry.[22,23]

Conclusion

It appears that few high-level of evidence articles have been published in 3 years in Iranian Endodontic Journal. However, for answering clinical questions, it is necessary to have high levels of evidence articles and it is suggested that Iranian Endodontic Journal publishes more clinical trial and systematic review articles with high LOE in future.

Conflict of Interests

Authors have no conflict of interest.

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