FEATURE ARTICLE

PREVALENCE OF RECOMMENDATIONS MADE WITHIN DENTAL RESEARCH ARTICLES USING UNCONTROLLED INTERVENTION OR OBSERVATIONAL STUDY DESIGNS

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ABSTRACT

Background

Evidence to inform clinical practice is reliant on research carried out using appropriate study design. The objectives of this work were to (i) identify the prevalence of articles reporting on human studies using uncontrolled intervention or observational research designs published in peer-reviewed dental journals and (ii) determine the nature of recommendations made by these articles.

Methods

Six peer-reviewed dental journals were selected. Issues published in January to June 2013 were examined and the types of articles published categorized. Following pre-defined inclusion/exclusion criteria, human studies classified as using uncontrolled intervention or observational research designs were subject to detailed review by two independent investigators, to examine if they presented clinical, policy or research recommendations and if these recommendations were supported by the data presented.

Results

52.9% (n = 156) of studies published during the time period met the inclusion criteria. Studies with uncontrolled intervention or observational research designs comprised a larger proportion of the primary research studies published in the journals with lower impact factors (73.3%; n = 107) compared to the high impact journals (38.9%; n = 49). Analysis showed that 60.9% (n = 95) of the included studies made recommendations for clinical practice/dental policy. In 28.2% (n = 44) of studies, the clinical/policy recommendations made were judged to not be fully supported by the data presented.

Conclusions

Many studies published in the current dental literature, which are not considered to produce strong evidence, make recommendations for clinical practice or policy. There were some cases when the recommendations were not fully supported by the data presented.

INTRODUCTION

Evidence-based practice is reliant on reports of original research studies. Scientific journals have a major role in disseminating new information to advance knowledge and influence change. The term evidence-based medicine is

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described as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients."[1] The need for better use of evidence in the development and delivery of public health care services is essential in terms of patient safety and clinical effectiveness, as well as to ensure scarce resources are used cost-effectively.[2]

An essential aspect of evidence-based dentistry is that dental professionals are informed of the best available evidence and change their behaviors in response.[3] It is this research 'translation' which is key to moving from evidence to improved patient outcomes.[4] To translate knowledge successfully, there needs to be examination of the nature of research evidence, how that evidence relates to the clinical setting and appropriate methods to change clinical practice.[5,6]

Journals are still the main source of continuing professional development (CPD) for dentists.[7] Clinicians should have the ability to assess available research evidence, appreciate the quality of this evidence and evaluate any clinical recommendations made.[8] Abt et al.[9] comment on the risk of information overload to clinicians due to the large and increasing number of journals and the rate of publication of studies, and the difficulties clinicians face to stay abreast of current best evidence. If critical appraisal skills are not put to use effectively, there is a risk of following recommendations that are not founded on appropriate study methodology or reporting.

There has been a long-recognized hierarchy of evidence for research publications. Systematic reviews and meta-analyses of randomized controlled trials (RCTs), followed by the RCTs themselves, are generally regarded as the highest levels of evidence[10] and whilst observational studies have recognized merits, the strength of the conclusions that can be drawn from these is often considered much weaker. However, RCT methodology is expensive and it may not be possible or ethical to answer some research questions.[11] Observational studies can be very valuable in analyzing associations between exposures and disease, determining causality, and identifying trends in behavior and disease patterns. However, making inferences that inform clinical decision-making from observational studies or from studies using non-randomized, uncontrolled intervention methods could be contentious and may create clinical risk.

This investigation aimed to explore whether published human studies using uncontrolled intervention or observational designs, considered by the evidence hierarchy to not produce strong evidence, make recommendations for clinical practice or dental policy, the nature of recommendations made, and whether these recommendations are fully supported by the data presented.

MATERIAL AND METHODS

The January–June 2013 volumes of six peer-reviewed dental academic journals were selected for investigation. The journals were the British Dental Journal, the Journal of the American Dental Association, the Australian Dental Journal, the Journal of Clinical Periodontology, the Journal of Dental Research and the European Journal of Orthodontics. The journals were chosen on the basis that the first three have large national association readerships, whilst the others are well-established in their field of interest. Table 1 shows a matrix of these journals, with the readership estimated from, where possible, circulation figures or the membership of affiliated societies.

The journals chosen had a range of impact factors, which allowed this to be considered as a variable. The impact factor stated in Table 1 relates to their reported five-year impact factor given in 2013 by the Journal Citation Reports.[12] There was a clear distinction between journals, in

Table 1. Matrix describing the characteristics of the six peer-reviewed journals selected, including details of estimated readership and five-year impact factor.

	Increasing impact factor →		
Increasing readership ↓		European Journal of Orthodontics (1.53)	Journal of Dental Research (4.43)
			Journal of Clinical Periodontology (4.51)
	British Dental Journal (1.26)	Australian Dental Journal (1.83)	
		Journal of American Dental Association (2.45)	