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editorial

Floss or Die?

Derek Richards
Editor

Floss or die? This sound bite was uttered on the other side of the Atlantic following the publication of studies linking periodontal disease with coronary heart disease risk. Does this link exist, and if it does not, what does the publicity say about the interpretation of evidence.

"You have to complain and complain and complain until you're blue in the face if you want to get something done around here"

Monty Python[1]

Was this the thinking behind "Floss or die?" is this the ultimate in victim blaming, or a legitimate plea to patients about the value of dental flossing in improving both oral and general health?

This issue of evidence-based dentistry addresses the latest studies examining the purported link between periodontal disease and coronary heart disease.

These studies, a meta-analyses by Danesh[2], together with two subsequently published studies, a case-controlled study from Finland by Mattila *et al*[3] and a prospective cohort study by Hujeol *et al*[4] from America all come to the same conclusion. This is that there is no evidence to support a relationship between periodontal disease and coronary heart disease.

All three studies come from the level B category as defined on the Centre for Evidence-based Medicine's website (http://cebm.jr2.ox.ac.uk/docs/levels.html). Level A includes randomised controlled trials and systematic reviews of randomised controlled trials which would be difficult to conduct. Each of the articles is summarised in this issue and an editorial, Cause Célèbre discuses all three.

One of the difficulties that arise in these and similar studies is the problem of differentiating between cause and association. For, although many are aware, that simply because two conditions are associated, it does not necessarily follow that the one is the cause of the other. So to assist readers we have taken the opportunity to look at the fundamentals of this differentiation.

The need to properly evaluate studies before acting upon their findings is at the core of the evidence-based approach. Would a careful critical evaluation of the initial study from Matilla *et al*[5] have prevented the initial wave of enthusiasm which built up in the USA leading to the "floss or die" quote? Or were the correct conclusions drawn at the time and over hyped?

I believe that a critical assessment of the initial study would have would have prevented or tempered our American colleague's statement, for now we are in a position of saying we were wrong. This ebb and flow of the information tide may well seem natural to the scientist but the public's confidence in researchers and scientific method is low at present and these constant changes increase their scepticism.

This scepticism is something that can be ill afforded in an area like dentistry where the relative amount of research money is small. Weak associations with systemic disease may seem like an attractive method of improving the profile of dental research as was the theory of focal sepsis in improving the claims of dentistry to be a profession at the beginnings of the last century[6], but they could backfire.

We need to improve the overall quality of research in dentistry. For while there are encouraging trends in the increasing availability of better studies[7], gathering material for this journal and recent systematic reviews have shown time and time again that we are lacking clear evidence for the effectiveness of some of the treatments we carry out.

We at Evidence-based Dentistry endeavour to find and evaluate the best available dental evidence. However, all practitioners need to be both critical of what they read, and complain about the quality of what is written in journals.

Complaining about the quality of the research presented in the journals will help engender better research. More importantly from the readers' point of view they should complain about the clarity of writing style. For clarity of presentation from the authors assists the reader in critically assessing the research presented. The adoption by an increasing number of journals of the structured abstract is a welcome sign in this direction, as is the adoption of the CONSORT[8] and QUOROM[9] guidelines, which are discussed in this issue. However, it will take a while but persevere, for as, Shakespeare wrote[10]: -

Perseverance, dear my lord,
Keeps honour bright: to have done, is to hang
Quite out of fashion, like a rusty mail
In monumental mockery.

This is not the first time scientists have claimed one association only for

some new piece of evidence to return to the status quo. So we need to concentrate on both the quality of our dental research and the critical interpretation of this research before we make sweeping pronouncements like "Floss or die".

1. Monty Python's Flying Circus (BBC TV programme, 1969).
2. Danesh J, Coronary heart disease, helicobacter pylori, dental disease, chlamydia pneumoniae, and cytomegalovirus: Meta-analyses of prospective studies. American Heart Journal. 1999; 138: 434–437.
3. Mattila KJ, Askainen S, Wolf J, Jousimies-Somer H, Valtonen V, Neiminen. Age, Dental Infections, and Coronary Heart Disease. J Dent.Res. 2000; 79(2): 756–760.
4. Hujoel PP, Drangsholt M, Spiekerman C, DeRouen TA. Periodontal Disease and Coronary Heart Disease Risk. JAMA; 284: 1406–1410.
5. Mattila KJ. Nieminen MS. Valtonen VV. Rasi VP. Kesaniemi YA. Syrjala SL. Jungell PS. Isoluoma M. Hietaniemi K. Jokinen MJ. Association between dental health and acute myocardial infarction. BMJ. 1989; 298: 779–812.
6. Dussault-G; Sheiham-A Medical theories and professional development. The theory of focal sepsis and dentistry in early twentieth century Britain. Soc-Sci-Med. 1982; 16(15): 1405–1412.
7. Nishimura K, Rasool F, Ferguson MB, Sobel M, Niederman R. Benchmarking the Clinical Prosthetic Dental Literature on MEDLINE, J Prosthetic Dentistry in press.
8. Moher D, Cook DJ, Jadad AR, Tugwell P, Moher M, Jones A, Pham B, Klassen TP. Assessing the quality of reports of randomised trials; implications for conduct of meta-analyses. Health Technol Assess 1999a; 3: i–98.
9. Moher D, Cook JC, Eastwood S, Olkin I, Rennie D & Stroup DF. Improving the quality of reports of meta-analyses of randomised controlled trials: the QUORUM statement. Lancet 1999b; 354: 1896–1900.
10. Troilus and Cressida (1602) act 3, sc. 3, l. 150.