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Does anyone need mouth rinse?

Professor Anthony Roberts looks at the evidence surrounding mouth rinses.

Not many members of the public would answer correctly if they were asked to identify the disease with the following attributes:

- recognised by the World Health Organisation as a global problem;
- severe forms are the sixth most prevalent disease of humans affecting over 11% of the world population;
- majority of the human population has a mild form of the disease, which could progress to form what is likely to be the most prevalent disease in humans; and,
- the disease can affect quality of life, self-esteem and is associated with other diseases such as cardiovascular disease and diabetes.

Perhaps they should be forgiven for not getting it right, but should we as dental healthcare professionals? The statements above should have a huge impact but when we realise that this disease is periodontal disease, for multiple reasons, attitudes change. This happens not just in Ireland, but globally. So should we bury our heads in the sand? Of course not. Here in Ireland, the most recent data from the 'Oral Health of Irish Adults 2000-2002' fits snugly within these European and worldwide parameters. From a periodontal perspective, only 8.4% of adults aged 35-44 years are considered healthy. Using the basic periodontal examination (BPE)/community periodontal index of treatment needs (CPITN) maximum scores as an indicator of periodontal disease, then 4.9% of the same cohort would have bleeding on probing (code 1), calculus (45.2%; code 2), shallow pocketing (33.9%; code 3) and deep pocketing (6.3%; code 4), with a shift towards deeper pocketing in the over 65-year-old cohort (12%; code 4).

Early intervention

There are a broad range of periodontal diseases and conditions, with the majority of cases being plaque-induced conditions and therefore responsive to non-surgical periodontal therapy. Early intervention significantly improves treatment outcomes and yet a mindset is prevalent amongst the profession whereby gingivitis is tolerated, as it is "not significant". A paradigm shift in our appreciation of the importance of gingivitis treatment should have emanated following the fifth European Workshop in Periodontology.

The consensus was clear that patients who develop periodontitis would have previously had gingivitis (Kinane and Attström, 2005). Put another way, if we have a patient who has gingivitis, there is a significant opportunity here to prevent further deterioration into periodontitis. The strategies to manage gingivitis are easily stated, but not as easy for patients to perform and whilst many patients respond to oral hygiene instruction and technique demonstrations, some patients either choose not to perform these techniques or are unable to perform them. As a consequence, the dental healthcare professional is placed in a situation where conventional approaches to management have been attempted without success and there is the head-scratching moment of what to do next. Certainly it is clear that establishing high levels of plaque control is paramount to success in the management of periodontal diseases. When a clinician reaches the point with a patient where there are no further improvements due to sub-optimal plaque control, then it is crucial to examine our own role on their situation:



FIGURES a and b: Clinical images of patient with persistent chronic gingivitis demonstrating: (a) poor oral hygiene and associated gingival inflammation with bleeding after gentle probing; and, (b) following the application of disclosing dye as part of oral hygiene instruction and demonstrations to a patient. The adjunctive use of an EO mouth rinse in addition to manual cleaning may provide additional benefit in managing this patient's gingivitis.

- Did you really spend enough time with the patient?
- Did the patient demonstrate to you at the chair side that what you were asking them to do was realistic and achievable, etc.?
- Was the importance of plaque control emphasised sufficiently?

If the answers to these (and similar) questions are positive and yet the patient's oral hygiene routine was insufficient to improve their plaque levels, then adjunctive therapies are a potential avenue. In 2015, the 11th European Workshop in Periodontology published its findings across the broad theme of 'Effective Prevention of Periodontal and Peri-implant Diseases', with working group 2 evaluating the evidence associated with the 'Primary prevention of periodontitis – managing gingivitis' (Chapple *et al.*, 2015; Serrano *et al.*, 2015). These workshops evaluated the research evidence to substantiate or refute a key question: in humans with gingivitis, what is the efficacy of chemical plaque control formulations used adjunctively with mechanical plaque control?

Indeed, the question was further divided into three sub-questions with the conclusions reached based on the systematic review and meta-analysis:

- Do chemical anti-plaque agents within mouth rinses and/or dentifrices, used adjunctively with mechanical plaque removal, provide additional improvements in gingival inflammation and plaque levels?
 - Yes – when used as an adjunctive therapy to conventional manual tooth brushing with a fluoridated dentifrice.
- Does the delivery format of the chemical agent employed (dentifrice and/or mouth rinses) impact upon its efficacy in reducing gingival inflammation and plaque levels?
 - Yes – as an adjunct to tooth brushing, the magnitude of improvement in gingival inflammation and plaque levels was larger in mouth rinse than delivered by dentifrice only.
- Should adjunctive chemical anti-plaque agents (dentifrice and/or mouth rinse) be recommended in addition to mechanical oral hygiene measures for routine daily use to manage gingival inflammation and prevent plaque accumulation?
 - Yes – as an adjunct to tooth brushing.

Which mouth rinse?

So, the conclusions from the European workshop are clear in advocating mouth rinses as an adjunct (not replacement for) mechanical brushing. But which mouth rinse should be recommended? Indeed, this is a question that clinicians are asked regularly and how should we answer?

The response to such a question really should be: "different mouth rinses are recommended in different clinical situations", as there is no single mouth rinse that can be recommended for all circumstances. In 2014, Boyle *et al.* published a systematic review and meta-analysis on the value of mouth rinses and demonstrated clear evidence of benefit in using mouth rinses to reduce dental plaque and gingivitis as an adjunct to standard care.

Of interest were the effects of different mouth rinses over time, with evidence suggesting that chlorhexidine products were of greater value in studies of three-month duration (or less), whereas essential oil (EO) mouth rinses had greater value beyond six-month usage.

Indeed, this would reflect my own personal prescribing pattern, where I find value in recommending chlorhexidine adjuncts for short-term acute conditions or post-surgical use, whereas for longer-term daily adjunctive usage I recommend EO mouth rinse. An interesting clinical question is: "Can we quantify the benefit for patients"? After all, if we are recommending products to our patients, we should be in a position to determine the level of improvement that we should expect to see. In 2015, a meta-analysis of the effects of EO mouth rinses produced a 'responder analysis', which answered this question following daily use of EO mouth rinse at six months (Araujo *et al.*, 2015). In the analysis, of the patients using mechanical cleaning alone, 14.4% had up to 50% of their mouths classed as healthy sites, whereas, of patients using EO mouth rinse, 44.8% had up to 50% of their mouths classed as healthy sites. What would you want for your waiting room; 14.4% or 44.8% of patients having 50% healthy sites?

Conclusion

We have a sizable population of patients in Ireland that have gingival inflammation and an opportunity to prevent susceptible patients deteriorating into periodontitis by improving personal plaque control. In those patients with periods of sub-optimal plaque control, clinicians should definitely consider a mouth rinse as an adjunct to their brushing regime. In recommending a mouth rinse, clinicians should be mindful of the diagnosis so that they prescribe appropriately and retain mechanical plaque control as the core message to patients.

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Biography:

Professor Anthony Roberts is Professor/Consultant in Restorative Dentistry at Cork University Dental School and Hospital. He is Head of the Restorative Department, Clinical and Academic Lead of the Dental Hygiene Programme and his clinical service and academic focus is in the field of periodontology.