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Dental Review™

Making Education Easy

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In this issue:

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Welcome to Dental Review issue 42.

Sadly, this will be my last issue, as I devote time to Editorship of the New Zealand Dental Journal. I would like to thank you, the subscribers, for your interest and fascinating comments since Issue 1, which came out in February 2007. I wish my successor Dr Colleen Murray well. I hope "Dental" continues to go from strength to strength and that the Christmas Hat fits her during the festive season!

With best wishes,

Nick Chandler
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Periodontal disease in patients with chronic coronary heart disease: Prevalence and association with cardiovascular risk factors

Authors: Vedin O et al.

Summary: A total of 15,828 patients were examined physically, had blood samples taken and completed a lifestyle questionnaire that included questions about bleeding gums and their number of teeth.

Comment: This Swedish study of patients from 39 countries associated periodontal disorders (gingivitis and tooth loss) with an increased risk of cardiac disease. There were large differences between countries, regions and ethnic groups. This is probably the biggest study so far looking at dental disease and heart problems, but it is based on self-reported data, and once again causality requires further investigation.

Reference: Eur J Prev Cardiol 2014 Apr 10. [Epub ahead of print]
Abstract

Dental Review

Independent commentary by Associate Professor Nick Chandler of the Department of Oral Rehabilitation, University of Otago.
For full bio CLICK HERE

The adoption of nickel-titanium rotary instrumentation increases root-filling quality among a group of Swedish general dental practitioners

Authors: Göransson H et al.

Summary: This investigation was carried out during mandatory continuing education for general dentists in Sweden. Radiographs of two root canal-treated teeth (mostly molars) were randomly sampled from 249 dentists before and after lectures and hands-on training. The adoption rate of the rotary instruments increased from 35% to 75%, and good quality root fillings increased from 27% to 49%.

Comment: The dentists underwent 4 hours of training supervised by endodontists and worked on extracted molars using the FKG RaCe system. They were provided with handouts and a picture manual showing file preparation sequences, and information on where to buy instruments and equipment. The dentists who considered canal preparation and filling as 'easy' produced more good quality fillings than the others. However, the adopters still produced some root fillings of very poor quality. Those dentists reluctant to accept the new technology showed no significant change in the quality of their work after the training.

Reference: Swed Dent J 2014;38(1):15-22
Abstract

Denture adhesives improve mastication in denture wearers

Authors: Gonçalves TMSV et al.

Summary: The retention and stability of complete dentures may be improved using adhesives. This study investigated the ridge status of 30 edentulous patients and the effectiveness of denture adhesives. Chewing tests were carried out with adhesive cream or strips on the dentures. A kinesiographic device investigated the chewing cycle, and the patients used a visual analogue scale (VAS) to record their masticatory ability. Adhesives helped patients with normal and resorbed ridges, and the condition of the ridge alone did not alter masticatory function in any of the measured parameters.

Comment: There are several denture adhesives available but they have not been directly compared for improved masticatory function. The subjects had worn new complete dentures for at least 3 months, and according to their VAS results, masticatory ability was significantly improved by the adhesive cream. The authors comment on how using old dentures in a similar experiment might influence masticatory variables. There is always the potential for patients to overuse adhesives, masking how ill-fitting they have become.

Reference: Int J Prosthodont 2014;27(2):140-6
Abstract

Free available chlorine concentration in sodium hypochlorite solutions obtained from dental practices and intended for endodontic irrigation: Are the expectations true?

Authors: van der Waal S et al.

Summary: One of the disadvantages of sodium hypochlorite as an endodontic irrigant is that its shelf life is limited. These workers collected 84 samples of solutions from dental practices in the Netherlands to determine whether they contained the expected levels of free chlorine. Iodometric titration was used, and pH measured. The solutions had been purchased from supermarkets and drugstores (36%), dental suppliers (48%) and pharmacies (16%). Of the samples, 15% contained less than 1% chlorine; the most reliable materials were sourced from the dental supply companies.

Comment: Many years ago, Alastair Stokes at our dental school carried out a similar study on solutions from the clinics, with analysis by the Chemistry Department. The concentrations were much lower than anticipated, and so today any unused hypochlorite is disposed of after 3 days. In the Dutch study, the samples contained about 50% less chlorine than expected. Over a quarter of the staff did not know when the solution was purchased, and less than a third kept it in a refrigerator.

Reference: Quintessence Int 2014;45(6):467-74
Abstract

Ibuprofen and/or paracetamol (acetaminophen) for pain relief after surgical removal of lower wisdom teeth, a Cochrane systematic review

Authors: Bailey E et al.

Summary: This paper reviews the use of two common analgesics following the extraction of mandibular third molars. Seven studies which included 2,241 participants were involved, and pain relief at 6 hours investigated. Ibuprofen 400 mg was found to be superior to 1,000 mg paracetamol, and the combination drug Nuromol showed encouraging results based on two trials.

Comment: The pain experienced after oral surgery is widely used in clinical studies of analgesics and is often seen in TV advertising. Six of the seven studies here were from the USA. Most patients can tolerate both ibuprofen and paracetamol. In New Zealand, we have a choice of combination tablets, the well-established Maxigesic (paracetamol 500 mg and ibuprofen 150 mg) and Nuromol (paracetamol 500 mg and ibuprofen 200 mg).

Reference: Br Dent J 2014;216(8):451-5
Abstract

RNZCGP Endorsed CPD Activity

Time spent reading this publication has been approved for CME for Royal New Zealand College of General Practitioners (RNZCGP) General Practice Educational Programme Stage 2 (GPEP2) and the Maintenance of Professional Standards (MOPS) purposes, provided that a Learning Reflection Form is completed.

Please **CLICK HERE** to download your CPD MOPS Learning Reflection Form. One form per review read would be required.

Survival of anterior cantilevered all-ceramic resin-bonded fixed dental prostheses made from zirconia ceramic

Authors: Sasse M, Kern M

Summary: Forty-two resin-bonded bridges with a cantilever single-retainer design were made from zirconia ceramic to replace upper and lower incisors. They were bonded using autocuring Panavia resin after air-abrasion of the ceramic surface. Two bridges debonded at 11 months during the mean observation time of 61 months, one due to trauma. Both were reattached and all bridges were in function after 6 years.

Comment: Zirconia provides high fracture strength and high fracture toughness. Tooth preparation is similar to conventional resin bonded bridges, and the teeth are then air polished and etched. A survival rate of 100% at what is regarded as mid-term is excellent, suggesting this is an alternative method of replacing a missing anterior tooth. It also proves that the bond strength to the ceramic can be reliable. The next studies will see if the concept works to replace canines and premolars.

Reference: J Dent 2014;42(6):660-3
Abstract

Root proximity and stability of orthodontic anchor screws

Author: Shigeeda T

Summary: Small titanium screws may be used for orthodontic anchorage. The risk factors for screw failure include proximity to nearby roots, as the devices are frequently placed into the small gaps between adjacent teeth. In this study, 165 screws (diameter 1.6 mm; length 8 mm) were placed in 58 patients between second premolars and first molars. Holes were cut with a 1.0 mm diameter bur in the maxilla and with a 1.3 mm bur in the mandible. Screw stability was then assessed using a Periotest device and cone-beam computed tomography (CBCT) images were taken. Screws were considered successful if they withstood orthodontic forces for at least 6 months without mobility. The success rate was 95%, with no significant difference between the two jaws, although screws in the mandible had the greater mobility.

Comment: The rate of screw contact with a root seen on the CBCT images was 20%, with some screws contacting at two or more points. This is lower than in some previous studies, and larger screws are available. There are limited animal studies of root resorption in these circumstances or data on how roots heal after treatment. A study in beagles showed healing if cementum or dentine was contacted, while another in mini pigs found external root resorption even without direct screw contact.

Reference: J Oral Sci 2014;56(1):59-65
Abstract

Regression of oral lichenoid lesions after replacement of dental restorations

Authors: Mårell L et al.

Summary: This investigation looked at regression of lichenoid contact reactions (LCR) and oral lichen planus (LP) after changes of materials in adjacent restorations. Forty-four patients were followed for an average of 6 years. Regression was higher in patients with LCR than LP. No patients with LP improved after exchange of materials, so a correct diagnosis is required before removing satisfactory restorations.

Comment: The most frequently replaced material was amalgam, and the commonest allergens found were mercury, gold and nickel. There was no support for replacing restorative materials in LP patients. Despite recommendations, over half of the patients in the LCR group replaced all their suspect fillings with others of a different material.

Reference: J Oral Rehabil 2014;41(5):381-91
Abstract

Enamel scarring by debonding burs: an SEM and profilometric study

Authors: Mahdavie NN et al.

Summary: Debonding of orthodontic brackets aims to remove the attachment and all adhesive material and not damage the tooth surface. Common instruments used are 12-, 20- and 30-blade carbide burs and white stones. This project used 80 extracted teeth, and following the use of bracket pliers and the above instruments the enamel surfaces were investigated with scanning electron microscopy (SEM) and profilometry. Remaining adhesive and enamel damage was scored. All samples had some adhesive on them and all had some scarring of the enamel. There was no difference between the 20- and 30-blade burs.

Comment: Most studies show that some enamel damage is inevitable. Investigations of this type usually use just the SEM, while the profilometer measures roughness numerically so information is readily examined statistically. The white stone, which might be chosen on the grounds of economy, resulted in a complete loss of enamel topography and extensive enamel grooves.

Reference: J Clin Orthodont 2014;48(1):14-21
Abstract

Efficacy of honey in comparison to topical corticosteroid for treatment of recurrent minor aphthous ulceration: a randomized, blind, controlled, parallel, double-center clinical trial

Authors: El-Haddad SA et al.

Summary: Ninety-four subjects with 180 minor recurrent aphthous ulcerations were recruited. Treatment started no more than 48 hours after development of the ulcers. Lesions were wiped four times a day for 5 days with a wet sterile cotton pellet with honey, triamcinolone ointment (Kenalog) or Orabase protective paste. The honey significantly reduced ulcer size, helped alleviate pain, improved healing and increased the number of ulcer-free days compared to the other treatments.

Comment: The 'take-home message' here is almost as long as the title of the article! There is a vast and growing literature on honey in wound healing, particularly for burns, and this is well referenced in this paper. However, all we are told here is that a commercial honey was used. I'm sure we would like to know how New Zealand's manuka honey would perform in this role. Is there a potential risk of caries in patients with chronic ulceration who might over-use this remedy?

Reference: Quintessence Int 2014;45(8):691-701
Abstract