

Dental Review™

Making Education Easy

Issue 19 - 2010

In this issue:

- > *Local anaesthetics*
- > *EDTA concentrations*
- > *Sleep apnoea*
- > *Implants versus Endo*
- > *Zygomatic implants*
- > *Economics of 8s*
- > *Accessory foramina*
- > *Partial caries removal*
- > *Bisphosphonate healing*
- > *Finger osteoarthritis*

Welcome to the first issue of 2010.

I have managed to get through this issue of the Review without mentioning nanotechnology, which is something of a feat with today's journals, but I am left wondering why dentists have smaller hands than teachers (item 10)? Perhaps this is something the admission committees of dental schools look at without telling us?

Happy reading and best wishes,

Nick Chandler
Associate Professor

Department of Oral Rehabilitation, University of Otago
nickchandler@researchreview.co.nz

Aspirations and solutions - a 20 year journey through dental local anaesthetics

Authors: Meechan JG

Summary: This article is derived from a lecture and summarises some very interesting work on local anaesthesia by a team from Newcastle, UK. The researchers were the first to demonstrate that 4% articaine with adrenaline is more effective than 2% lignocaine and adrenaline. It reports on such things as systemic effects, discomfort and efficacy. Among the interesting findings is the fact that when infiltrating around mandibular incisors, splitting the dose buccally and lingually is more effective than either site in isolation. Another finding was the increased efficacy of pulpal anaesthesia of all the mandibular teeth when an articaine infiltration in the molar region supplemented a mandibular block.

Comment: The author starts by reminding us that these drugs are probably the most important ones in dentistry, and then provides an excellent overview of recent research on the topic. As well as the clinical investigations mentioned above, it reports laboratory studies of different syringe and cartridge types with special reference to aspiration.

Reference: *Surgeon* 2009;7(6):358-361

<http://www.journals.elsevierhealth.com/periodicals/surge/article/PIIS1479666X09801108/abstract>



To find out what happened at the 2009 Dental Expo
CLICK HERE

PLAQUE BIOFILM REMOVAL IS REQUIRED

FROM HARD SURFACES

Regular mechanical cleaning provides "focused" or "targeted" energy to dislodge and remove the plaque biofilm from non-shedding hard surfaces.

AND SOFT TISSUE

75% of the oral cavity is composed of soft tissue. Bacteria on these surfaces can quickly recolonise other dental surfaces.



Click here to read more clinical information on the adjunctive benefit of an essential oil-containing mouthrinse in reducing plaque and gingivitis in patients who brush and floss regularly.

LISTERINE REACH

Johnson & Johnson (New Zealand) Ltd, Auckland.
DA999MT NZ6175/10

As an adjunct to brushing and flossing, Listerine antiseptic Mouthwash penetrates and kills plaque biofilm
Medicines have benefits and some may have risks. Always read the label and use only as directed. Listerine® Coolmint contains: Benzoic acid 0.12% w/v, Cineole (Eucalyptol) 0.0922% w/v, Ethanol 27.0% w/v, Thymol 0.064% w/v.

The effect of different concentrations of EDTA on instrumented root canal walls

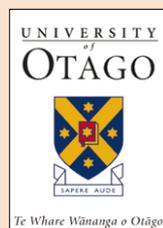
Authors: Sen BH et al

Summary: This study used 40 extracted single-rooted teeth in a scanning electron microscope study to investigate how different EDTA concentrations varied in their ability to remove smear layer and erode dentine within root canals. EDTA concentrations from 1% to 15% were studied, and no significant difference in smear layer removal was observed.

Comment: Authorities recommend that EDTA is used with sodium hypochlorite to remove the smear layer, the final flush being NaOCl. The process may erode the root canal wall and dentinal tubule openings. This study is a useful review of irrigation and suggests that the commonly used 18% or 17% EDTA concentrations could be replaced by a 1% solution, which would be as effective clinically.

Reference: *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2009;108(4):622-627

<http://tinyurl.com/yghmqpg>



*Independent commentary
by Associate Professor
Nick Chandler of the
Department of Oral
Rehabilitation,
University of Otago*

Five years of sleep apnea treatment with a mandibular advancement device

Authors: Martínez-Gomis J et al

Summary: Forty patients with obstructive sleep apnoea (OSA) were followed up after provision of a mandibular advancement device (MAD) to provide 70% of the maximum protrusion. Temporomandibular disorders (TMD), overjet, overbite, occlusal contacts, adverse side effects and technical problems were recorded. Fifteen patients were still using their appliances at the end of the study. There was no significant variation in TMD problems, but significant reductions in overjet, overbite and occlusal contacts were noted. These were permanent changes in most patients in the first 2 years. There was also a considerable number of unscheduled dental visits each year because of acrylic breakage, poor retention and other problems.

Comment: MADs of several designs are commonly used to treat snoring and OSA. They are effective in improving breathing but have a declining acceptance rate over time. Interestingly, the reduction in posterior occlusal contacts tended to reverse between years 2 and 5, in agreement with another long-term study. The authors wonder if the adverse effects are due to wearing the appliance and/or having the jaw protruded for 6–8 hours each day.

Reference: *Angle Orthod* 2010;80(1):30-36

<http://www.angle.org/doi/pdf/10.2319/030309-122.1?cookieSet=1>

Evaluation of the cost-effectiveness of root canal treatment using conventional approaches versus replacement with an implant

Authors: Pennington MW et al

Summary: This paper uses a mathematical model of survival and outcome data to simulate the lifetime path of restorations done for a maxillary lateral incisor and compares these to an implant supported crown at this site. The costs are based on UK National Health Service fees. It found that root canal retreatment was cost effective but endodontic surgery was not cost effective in the model. If conventional root canal treatment fails, a single tooth implant in this scenario provided increased longevity at lower cost.

Comment: This paper joins a number published over the last few years comparing root canal treatment and restoration of a root-filled tooth with the provision of implants. Most find the treatments equally satisfactory. The starting point in the model was irreversible pulpitis in a lateral incisor, where no treatment or extraction would not be a realistic first option for many patients or dentists. Lateral incisors can be surprisingly difficult teeth to treat for a number of reasons. At a personal level I would recommend minimal heroism and a friendly implantologist for these teeth if they do not 'behave'.

Reference: *Int Endod J* 2009;42(10):874-883.

<http://www3.interscience.wiley.com/journal/122591566/abstract>

Privacy Policy: Research Review will record your email details on a secure database and will not release it to anyone without your prior approval. Research Review and you have the right to inspect, update or delete your details at any time.

Disclaimer: This publication is not intended as a replacement for regular medical education but to assist in the process. The reviews are a summarised interpretation of the published study and reflect the opinion of the writer rather than those of the research group or scientific journal. It is suggested readers review the full trial data before forming a final conclusion on its merits.



Empress® Direct

Direct Aesthetic Composite

The aesthetics of a ceramic
...with the convenience of composite

- Exceptional handling
- True-to-nature shades
- Simplified application
- Superior polish

NOW AVAILABLE!



Phone today for a FREE demonstration 0508 486 252

ivoclar
vivadent
passion vision innovation

For more information, please go to <http://www.ivoclarvivadent.co.nz>

Rehabilitation with zygomatic implants: a treatment option for the atrophic edentulous maxilla – 9-year follow-up

Authors: Kuabara MR et al

Summary: This case report describes the management of a 46-year-old man with severe atrophy of the posterior maxilla. Under general anaesthesia, zygomatic implants were placed bilaterally together with four standard implants in the anterior maxilla. A definitive metal/resin fixed denture was placed one year later.

Comment: The authors list possible treatments for this patient as bone grafts from an external site prior to implant placement, a palatine approach, tilting implants or the zygomatic approach described. The patient's treatment is clearly a great success 9 years on. Today, it may be possible to immediately load implants of this type.

Reference: *Quintessence Int* 2010;41(1):9-12

<http://qi.quintessenz.de/index.php?doc=abstract&abstractID=18096>

Economic aspects of mandibular third molar surgery

Authors: Liedholm R et al

Summary: Six oral surgery clinics in southern Sweden collected data on 64 patients having mandibular third molars removed. Labour time, medical services and materials were recorded (on a single tooth basis) and a postal questionnaire of the participants identified indirect costs such as time off work and transport costs. The patient's loss of time, based on average labour costs, was more than that of the surgical intervention.

Comment: This paper is interesting in that it factors in some societal costs of dental care, including accessibility to the clinics. When the indications for removal of these teeth are weak, these other factors need further consideration. This was a small study and limited by the location of the clinics, but much of the data gathered was comparable to a study done in Wales.

Reference: *Acta Odontol Scand* 2010;68(1):43-48

<http://www.ingentaconnect.com/content/apl/sodo/2010/00000068/00000001/art00006>

Accessory mandibular foramina: Histological and immunohistochemical studies of their contents

Authors: Przystanska A et al

Summary: Twenty-one human cadavers were dissected to determine the contents of accessory foramina on the medial aspect of the mandibular symphysis. Neurovascular bundles were discovered, formed by branches of the mylohyoid nerve, sublingual artery and veins. Immunohistological tests confirmed the presence of nerve tissue.

Comment: These nerve fibres may provide accessory innervation for the anterior mandibular teeth and play a role in ineffective mandibular blocks (see the first study in this issue). Accessory foramina may also have a role in the spread of tumours, and their contents may be important as a cause of haemorrhage during implant placement.

Reference: *Arch Oral Biol* 2010;55(1):77-80

<http://tinyurl.com/ybnxhg>

Research Review publications are intended for New Zealand health professionals

COMING SOON

Health Manager

with contributing expert *Dr Peter Carswell.*

Add **Health Manager** to your current subscriptions [CLICK HERE](#)

We'll take your business' pulse, before we prescribe.



bnz partners

47% of kiwis have suffered from dentine hypersensitivity.*

Sensodyne targets the source of pain and is clinically proven to relieve the pain of dentine hypersensitivity. So recommend twice-daily brushing with Sensodyne in place of regular toothpaste.

SENSODYNE

New Zealand's most recommended toothpaste for sensitive teeth*.

*2009 NZ Consumer Research. GSK data on file. Sensodyne Total Care, Total Care Gel, Total Care & Whitening, Fresh Impact and Gentle Whitening active ingredients: 50mg/g Potassium Nitrate, 2.21mg/g Sodium Fluoride. Sensodyne Original active ingredient: 100mg/g Strontium Chloride. Medicines have benefits and some may have risks. Always read the labels. Use only as directed. Sensodyne® is a registered trade mark of GlaxoSmithKline group of companies. GlaxoSmithKline NZ Ltd, Auckland, New Zealand. TAPS PP7997. GLA2350_A.



