Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by **John R. Radford**.

Light curing – alarming practices

Light curing procedures – performance, knowledge level and safety awareness among dentists

Kopperud SE, Rukke HV *et al. J Dent* 2017; **58:** 67–73

Of those dentists who completed the questionnaire, almost one third did not adequately protect their eyes from blue light.

For example, 2% did not use any protection, 8% looked away from the light and 20% used a protection shield mounted on the curing light. A protection shield mounted on a curing light is not sufficient. However, it is not that straightforward in that manufacturers recommend different curing times; these can range from less than 5 seconds to almost 2 minutes. When guidelines are applied to reflected light, the maximum permissible exposure time is 5 min each day. In this study that explored light curing procedures in Norwegian dentists employed in the Public Dentist Service, despite three reminders, only a little over half of those invited answered the questionnaire. The investigators concede their findings must be interpreted in the light of response bias. Apart from the above findings, only about half the respondents checked regularly the irradiance of their units. This would suggest irradiance value indicators incorporated into curing lights are useful.

DOI: 10.1038/sj.bdj.2017.577

No clear message

Effect of different surface treatment techniques on the repair strength of indirect composites

Loomans BA, Mesko ME *et al. J Dent* 2017; **59:** 18–25

Surface treatments of resin composite had little effect on the bond strength of the repaired composite.

Hydrofluoric acid, air abrasion and silane coupling agents have been used singly and in combination to facilitate the bond between fractured and repaired resin composite restorations. This *in vitro* study explored mechanical properties associated with repairing indirect composites (3M™ ESPE™ Lava™ Ultimate CAD/CAM Restorative and Clearfil ESTENIA™ C&B) with Filtek Supreme XTE. Composite blocks were roughened, mimicking that achieved with a diamond bur. They were then treated with combinations of air abrasion (silanised silica-coated 30 µm aluminium oxide particles), delivered using different units, and hydrofluoric acid. The key finding was that when the repaired resin composite materials were subjected to thermal cycling, thermal cycling was both detrimental to the cohesive strength of the materials and the repair bond strengths. However, without cycling, such treatments resulted in a significant increase of bond strength, but for LAVA™ Ultimate only. Just as for indirect composite restorations, no surface treatments are universally applicable for repair of direct composite materials.

DOI: 10.1038/sj.bdj.2017.579

Posterior resin composite restorations

Short communication. Posterior composites: update on cavities and filling techniques

Sabbagh J, McConnell RJ *et al. J Dent* 2017; **57:** 86–90

'The use of high intensity plasma lights is not recommended' as they result in greater shrinkage of the resin composite.

This is a narrative review. The main disadvantage of resin composite restorations is polymerisation shrinkage; this can result in stress cracking of the enamel, but if bond fails the authors state that this can result in post-operative sensitivity, marginal staining, and recurrent caries. Of note, the higher the intensity of the light source, the greater the shrinkage. Because resin composite restorations must be placed using incremental packing, they take longer to complete than dental amalgam restorations, although this may be mitigated by the use of bulk filling resin composites and one stop self-adhesive systems. The conventional, 3-step, etch-and-rinse adhesives are still the gold standard when comparing different bonding systems. The SiSta classification of cavity design is described; it states the 'only criterion for the cavity design is the removal of the diseased tissue.' Elimination of substrate is not described.

DOI: 10.1038/sj.bdj.2017.578

Silver diamine fluoride

Prevention of secondary caries using silver diamine fluoride treatment and casein phosphopeptide-amorphous calcium phosphate modified glass-ionomer cement

Zhaoa IS, Mea ML *et al. J Dent* 2017; **57** 38–44

Treatment of the cavity with silver diamine fluoride before placement of glass ionomer cement containing CPP-ACP enhances anticariogenic effect *in vitro*.

In a recently published systematic literature review (*Aust Dent J* 2015; **61:** 6–15), it was reported that none of the four only *in vivo* studies examining this subject looked for whether or not restorative materials that contain antimicrobials have an anticariogenic effect. Most *in vitro* studies have shown the incorporation of antimicrobial agents did exert an anticariogenic effect. This study, carried out on 32 extracted premolar teeth, continues with this broad message that agents with anticariogenic capabilities do have an effect when tested *in vitro*. As has been shown in another study, this study showed the addition of CPP-ACP to glass ionomer exerts an antibacterial effect. Importantly, pretreatment of the cavity with silver diamine fluoride reduces further outer lesion depths. The silver diamine fluoride was topically applied for 3 minutes to the cavities using a microbrush before placement of the glass ionomer cement with or without 3% CPP-ACP. Secondary caries was simulated using a biofilm challenge.

DOI: 10.1038/ sj.bdj.2017.580