Restorative materials without Bis-GMA – myth or reality?

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percentage of 13%. Regarding the relation of the changes with the gender, age, DMFT index, and distribution by quadrants, did not show statistically significant differences ($p > .05$).

Discussion and Conclusions: In this study, the prevalence of IA was higher than in other studies that revealed values of 0.3%, 0.5% and 0.27% [2–4], but close to Temilola et al. found 16.1% of cases of IA in a paediatric population in Nigeria [5]. There was no statistically significant relationship between DMFT and IA in the present study ($p \geq .05$). Other studies have demonstrated a relationship between hyponeralization of the enamel and increased risk of caries [2,3].

The high prevalence of AI found in this study may be due to the fact that the majority of patients, with suspected rare alterations of the dental tissues, are frequently sent, to the consultation of the Egas Moniz Dental Clinic by family doctors, paediatrics and other dentists.

When the dentist attends these cases, he must establish the diagnosis, inform the patient, and recommend the therapeutic approach that may have a multidisciplinary involvement.

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Restorative materials without Bis-GMA – myth or reality?

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ABSTRACT

Introduction: The Bis-GMA, which is known to possess toxic properties to the human body, is part of the chemical structure of several direct dental restorative materials [1]. However, currently, there are composite resins on the market that are free of this monomer [2]. From the dental resin are released many other compounds [3]. The aim of this study was to analyse the composition of restorative materials from three different brands, and to verify whether or not Bis-GMA monomers are present in their composition.

Materials and methods: Samples of the Enamel *plus* HRi® Universal Dentine (Micerium), Enamel *plus* HRi® Bio Function (Micerium), Filtek® One Bulk Fill Restorative (3 M ESPE) and Admira® Fusion (VOCO) resins were prepared using three different methods: light-curing resin specimens placed for 18 min in an ethanol/water solution; light-curing resin specimens placed for 180 min in an ethanol/water solution; resin samples eluted in an acetonitrile solution without being photopolymerized. These samples were analysed using the HPLC (High Performance Liquid Chromatography) technique.

Results: HEMA, Bis-GMA and UDMA monomers were found in the composite resin Enamel *plus* HRi® Universal Dentine (Micerium); UDMA monomers were detected in Enamel *plus* HRi® Bio Function (Micerium); UDMA and TEGDMA monomers were revealed in Filtek® One Bulk Fill Restorative (3 M ESPE), and HEMA and UDMA peaks were obtained in Admira® Fusion (VOCO).

Discussion and conclusions: The release of most of the residual monomers occurs in the first minutes after polymerisation. As shown in the results, the difference of the concentrations of monomers, detected by the HPLC method, between the resins eluted during 18 min and 180 min, was not significant. It was concluded that in samples of non-polymerized resins, it is possible to detect a larger number of residual monomers, and that Bis-GMA is only present in Enamel *plus* HRi® Universal Dentine (Micerium) resin.

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Sleep bruxism: the complexity of a definitive diagnosis – case report

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ABSTRACT

Introduction: Bruxism is defined as a repetitive jaw-muscle activity characterised by clenching or grinding of the teeth and/or by bracing or thrusting of the mandible [1]. Its effects can be deleterious to the oral tissues and restorations, which highlights the importance of insight towards the fundamental aspects of occlusion in each patient. Dentists should therefore study and examine the individual occlusal schemes in order to plan and treat these patients [2].

Materials and methods: Patient, male, 22 years old, with tooth wear compatible with bruxism. The diagnosis was made based on a multiple level of sensibility determined by the 2018 Bruxism Consensus of possible, probable or definitive diagnosis of bruxism. We applied a specific sleep bruxism questionnaire [3] plus a clinical examination and questionnaire about clinical signs and symptoms based on the Diagnostic Criteria for Temporomandibular Disorders [4]. After we applied an intra oral red coloured device for evaluation of bruxism during sleep for two, Bruxchecker®, and at the same time the patient slept with an electromyography device in the temporal muscle called Grindcare® with recording of audio and video during sleep. All the assumptions of the Helsinki Declaration have been fulfilled and an informed consent for clinical case of Clinica Dentária Egas Moniz approved by the ethic commission of Instituto Universitário Egas Moniz.

Results: We have a positive diagnose for definitive bruxism confirmed with 15.6 grindings/clenching bursts per hour on the first night and 4.7 grindings/clenching bursts per hour on the second night, with audio and video we could have the perception of sounds compatible with problems of the respiratory system but absence of sounds and images compatible with tooth grinding. Clinically signs of tooth attrition were observed as well as tongue and cheek indentations, our patient also answered positively to the specific sleep bruxism questionnaire. The Bruxchecker® was helpful to see the dental wear movements.

Discussion and conclusions: Polysomnography is the gold standard for the diagnosis of sleep bruxism. However, electromyography supplemented with audio and video recordings is increasingly advocated as an equally valid method. The existence of a device like Grindcare® which measures the number of muscles bursts per hour associated with clinical examination allows to give a definitive bruxism diagnosis if used for a determined number of nights. Bruxchecker® and Grindcare® results were somewhat confusing on both nights but this is due to extrinsic factors. The result was a definitive sleep bruxism diagnose according to the last bruxism consensus of 2018.

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