



EQUIA: a material suited to present-day needs

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At the start of the 21st century our profession is faced with major challenges in terms of the social realities of today's world: we are now experiencing a period of change and our profession needs to adapt to new minimally-invasive and preventive techniques to treat oral diseases. The static types of treatment previously used have been superseded by a number of advances in terms of the technology and materials used; moreover, we have also developed new ways of communicating, because we have been forced to change the way we deal with current demands.

Dentistry is changing

Improved patient hygiene levels combined with the hardening of enamel due to preventative measures (with the help of Fluoride and products such as MI Paste) mean that we now see different types of lesions. Not only have rates of tooth decay declined, but the pattern has changed given that today's societal pressures have an influence on the morphology and progression rate of decay. This

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situation has resulted in a need to focus on alternatives to traditional treatments which place a greater emphasis on preserving as much of the biological tooth structure as possible. It is therefore worth re-examining the new high-viscosity glass ionomers (for example, EQUIA) to provide an adequate clinical response to the type of lesions currently seen which require a different approach, as much less - or even no - preparation is required. EQUIA's improved mechanical and optical properties, its ability to bond to the tooth's structure, its hydrophilic nature, its greater biological compatibility and its anticariogenic properties due to the

release of fluoride mean it is a highly versatile material and, for these reasons, is suitable for preventative restorations or minimally invasive work.

Patients are changing

In a society of mature consumers, who decide for themselves the treatment they want, minimally invasive treatment has become the dentistry of demand (they ask for it) and not merely of supply (we offer it). We need to establish a relationship of trust with patients, as maintaining good relationships will benefit patients. Indeed, a good relationship with patients has a positive impact on dental clinical practice. It is always better to involve people in their own health issues and get them to take their own decisions about their treatment and the materials used; something that gives even greater added value to EQUIA.

Materials science is changing

Biomaterials are, by definition, materials that act as natural tissue and closely imitate the properties of tissue in its biological environment. Biomaterials must combine functional feasibility, biostability, biocompatibility and sterile features. The glass ionomer based system, EQUIA is currently the restoration material that most resembles natural teeth given that it is a mineral. Amalgam and plastic resins currently used differ substantially from natural materials.

Traditionally, amalgam and resins have been the materials of choice. There is considerable debate about the potential health consequences of using these types of dental materials, which have been used for some time, and for several decades some members of the scientific community have raised doubts about the efficacy and innocuousness of these materials and the effect of the mercury in the amalgam on animals and humans. Queries have also been raised about the cytotoxicity of the composites used in various dentistry applications.



Options are changing

All these issues mean that materials with greater biocompatibility offering a solution to the current demands for minimally invasive dental restorations should be reassessed, as using toxic materials that cannot be eliminated, even in low concentrations, needs to be justified, especially as patients are already exposed to other toxic materials through other sources: i.e. environmental pollution, food, etc., and we do not have any information about individual tolerances and potential consequences. The need for a reassessment is now even more pressing due to the increased availability of such materials. In my opinion, resin is the most reasonable material of choice for the aesthetic dental zone and bonding (mainly to the enamel) reasons, and for its easy adaptability. For larger restorations on rear load-bearing areas, a different type of material should be considered.

For many years, a number of countries have adopted a cautious approach to amalgam dental fillings (they have been banned in Norway since 2008) and people have been advised of the potential risks involved. Equally, other countries have recently decided to seriously examine the warnings issued in the Official Reports of the WHO on the dangers of using mercury in amalgam dental fillings and have recommended that dentists should not use amalgam fillings, especially (but not exclusively) in pregnant women and children under the age of 14 (though I would also include elderly and high-risk patients in this group). However, it is the dental clinical team that is most at risk of contamination, given that when the product is handled some of the mercury is released into the surgery's ambient atmosphere.

Environmental awareness is changing

It has been noted that up to 56% of the population is worried about environmental pollution. The problems of amalgam dental fillings on the natural environment are also important given that the majority of dental surgeries do not dispose of mercury separately or have the appropriate technology to handle, dispose of and remove such fillings. This closes the circle given that poor management of the environment will have a negative impact on all our health.

Taking care of the environment is also a way of taking care of your health. To quote the words of Daniel Goleman, author of *Ecological Intelligence*: "Ecological intelligence is the ability to live and have the smallest possible impact on the natural environment. It implies an understanding of the consequences our daily decisions may have on the environment and attempt, insofar as possible, to take actions that have the greatest benefit for the planet. The paradox lies in that the more consistent we are with the wellbeing of our planet, the more we will invest in our own wellbeing." And taking responsibility for the decisions we take also affects our planet and our own health. This concept will be the next revolution that will shortly change the demand for products, as companies and products promoting sustainability will be rewarded whilst those resisting the change will start to disappear.

This article and these thoughts explore a silent reality: people are now more educated and informed than ever before, and are active participants who are increasingly involved in taking decisions about their treatment and materials used - key issues behind the involvement of patients in health issues and successful treatment. High-viscosity glass ionomers, like EQUIA are therefore set to play a leading role in minimally invasive treatments, as they offer suitable aesthetic and mechanical properties, as well as low toxicity, an absence of environmental contamination, which are all arguments to encourage patients to select these ionomers over other materials.

About the author

Dr José Zalba is a Specialist in Oral and Dental Health Prevention Programmes (UCM) and a member of the GC European Minimal Intervention Advisory Board. His dental practice in Pamplona, Spain, is based on the principles of Minimum Intervention Dentistry. For more information about him please visit www.capdental.net

