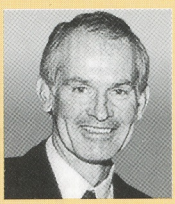
AESTHETIC UPDATE



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Direct adhesive materials: current perceptions and evidence – future solutions

In June 2000, the 3M company sponsored a group of predominantly Australian dental experts to look at the current perspectives and future directions of direct adhesive dental materials.[1]

The Summary Statement of this meeting is an informative document of which a synopsis is presented below. As any synopsis contains author biases, readers are encouraged to review the original article.[2]

Summary statement

4.1 The changing scene

There was a consensus that demographically a swing towards older age groups who were keeping teeth longer had emerged whilst younger patients were experiencing reduced levels of disease. Changing patterns and presentations of dental diseases is creating new challenges for the dental profession.

4.2 Patient-dentist relationships.

Better education and access to information has made dental consumers more discerning and increasingly involved in the decision making processes relating to their dental care.

The Internet aware patient was welcomed, although reservations were expressed that some dentists may lose control over important clinical decisions to patients whose myopic views hindered an understanding of the overall parameters of dentistry.

4.3 Preservative dentistry

There was a strong consensus that 'predict and prevent' preservative dentistry should replace the traditional 'drill and fill' approach of every day dental care.

Caries risk assessment and attempts at remineralization of early lesions should precede any operative intervention. When intervention was indicated it should be minimal in nature and biologically compatible adhesive materials placed to assure the best long term outcome for the tooth involved.

It was agreed that the dental profession failed to realize the long term consequences of many operative procedures and the term 'permanent restoration' should be discontinued.

Remunerative systems built upon the 'drill and fill' approach should be replaced by systems with an emphasis on cost benefit analysis relating to evidence based alternative treatment options.

Effective preservative dentistry also requires recognition for regular reviews and maintenance of restorations, minimizing the iatrogenic effects of existing preparation techniques and the development of new instrumentations and minimally invasive operative procedures.

4.4 Education and training

A greater move towards evidence based education and training at all levels was identified.

The potential benefits of the Internet should be used to facilitate problem based, patient centered and self directed learning techniques. The challenge with this type of learning was to ensure the quality of the education material presented within this rich resource.

It was thought that many practitioners have fundamental misunderstandings in relation to bonding procedures and techniques for the placement of tooth coloured restorations in posterior teeth.

With the rate of introduction of new concept materials likely to increase, manufacturers have a responsibility and a role to assist practitioners to use the new restorative systems to best meet patients' needs and expectations.

4.5 Research

Academia and practitioners need to find ways to work together to develop laboratory tests to predict the clinical handling and performance of materials and produce materials to meet the changing needs and expectations of patients.

Clinical testing procedures need to be standardized and trial protocols that give insights into the performance of materials in everyday clinical practise encouraged.

Research into less clinically sensitive adhesive restorative materials was required especially in the field of paediatric dentistry.

4.6 Application and performance of existing materials

Direct, tooth coloured adhesive restorative materials are rapidly becoming the standard of routine dental care for both 'replacement dentistry' and the management of new lesions. The restorative material of choice is dependent upon the caries risk assessment of individual patients.

In relation to specific materials, no material is ideal and each limited by the placement technique applied. The use of 'sandwich techniques' that combine biologically compatible materials with stronger inert materials was recognized.

Glass-ionomer cements and resin modified glass-ionomer cements suggest strongly anecdotal anti-cariogenic effects but this has not been confirmed in randomized clinical trials, and further research is required.

These materials are straightforward to handle and bond predictably at the restorative interface although they have a relatively low fracture and wear resistance.

Composite resins are highly aesthetic and have good mechanical, physical and handling properties. Dentine bonding with composite resin is very technique sensitive and less reliable than bonds formed with glass-ionomers.

Composite resins are viewed as the material of choice in low caries risk patients where the margins of the restoration are bound by enamel.

Compomers lacked sufficient clinical evidence to define the role of the material in the life long management of permanent teeth although there were indications for use in the deciduous dentition.

Bonded amalgam restorations were considered to have limited clinical application.

References

1. Wilson NHF. Direct adhesive materials. The views of an expert group. ADA News Bulletin 2001;292:29-31.
2. Wilson NH. Conference report. Direct adhesive materials: current perceptions and evidence future solutions. J Dent 2001;29:307-16.