Clinical Significance

Simple techniques can be used to manage patients who are anxious and fearful of dental procedures. The injection of anesthesia is often the aspect most feared by patients, so methods to take the pain out of the process are extremely valuable. Once a patient no longer fears the injection procedure, it's more likely that he or she will take better care of his or her dental health, including keeping regular dental appointments. The dentist benefits by having a more cooperative, less fearful patient, which makes the entire care delivery process easier.

The technique consists of vibrating the needle during the injection process. Devices are available that can help in accomplishing this, but simply shaking the patient's cheek with a mirror during injection can mimic the effects. If the patient is anxious, the dentist may want to begin shaking the patient's cheek before beginning the injection, which will distract the patient as he or she tries to understand why it's being done. This can also relieve anxiety. The gating technique should be maintained throughout the injection.

Haddad F: Pain-reducing techniques for delivery of dental anesthesia. *Dent Econ* 108:72-75, 2018

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DENTAL TRAUMA

Reattaching tooth fragments

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BACKGROUND

When dental trauma (DT) results in loss of a fragment of tooth, fragment reattachment can help to preserve tooth structure and maintain the color, shape, and translucency of the original tooth. Children and adolescents are most often at risk for DT, which can cause crown fractures, injuries of the enamel and dentin, or fractures limited to the enamel. The trauma can occur when there is an accident at home or school, during sports participation, or as a result of violence or motor vehicle collisions. If treatment is not performed, esthetic, functional, or emotional damage can result. Because there are many approaches and materials used for fragment reattachment, a review of in vitro studies was undertaken to analyze which bonding technique provides the best bond strength (BS) for a tooth fractured by DT.

METHODS

A search of the PubMed, LILACS, Web of Science, Cochrane, and Scopus databases was done, as well as a review of the gray literature in Google Scholar and Open Grey and the reference lists of eligible studies. The goal was to identify in vitro studies that evaluated permanent human teeth fractured by trauma. The search yielded 21 studies covering 119 in vitro experimental groups for analysis. The experimental groups were divided according to the technique and the materials used, as well as whether the fragment was rehydrated and according to which time periods and solutions were used. Ten different kinds of preparation techniques were analyzed: no preparation, chamfer, bevel, post-anchors, overcontour, internal groove, and variations of these techniques. Different materials were used to perform each technique for bonding of the fragment to the tooth remnant. After bonding, the tooth was subjected to fracture simulation and BS value was determined.

RESULTS

BS Value Results

The best results in terms of BS were obtained for reattachment without further preparation and using an adhesive system involving an intermediate composite with good mechanical properties. The results for each preparation are as follows:

1. In cases with no preparation, the highest BS values were obtained for a 2-step adhesive system and flowable resin.
2. When no preparation was done with chamfer after reattachment, the results were less favorable than for the 2-step adhesive system and flowable resin.
3. When no preparation was done with an adhesive system and microhybrid composite resin, the BS values were also less than no preparation with a 2-step-adhesive system and flowable resin.
4. Removal of the dentin portion of the fragment followed by chamfer had the best results when an adhesive system and microhybrid resin were used.
5. For the bevel technique, BS was highest when an adhesive system and a nanocomposite were used.
6. A variation of the bevel technique used an overcontour with an adhesive system and microhybrid composite resin and achieved a medium-range BS value.
7. With an anchorage system, the best BS was achieved using mini anchors of prefabricated composites reinforced by glass fibers, an acid etchant, a primer, and a luting resin cement.

8. For an overcontour approach, the best BS value was achieved with an acid etchant, an adhesive system, and microhybrid composite.
9. With the internal groove technique, the highest BS was associated with an acid etchant, an adhesive system, and a microhybrid composite.
10. The dentin groove technique with a shoulder technique had better results when a luting cement resin and a nanohybrid composite were used.

Hydration and Rehydration

With a well-hydrated fragment, the original color of the fragment can be maintained and BS values can be improved. Studies rehydrated the fragment for periods ranging from 15 minutes up to 24 hours. There was no statistical difference between the 15-minute and the 24-hour results, so limiting rehydration to just 15 minutes would be preferred. Not only does it favor clinical management, but it also partially restores lost resistance.

DISCUSSION

Many factors influenced the final BS results in these in vitro studies. Among these factors were performing sectioning versus producing the fracture using a universal testing machine; maintaining adequate hydration or performing rehydration; and choice of materials or technique. The decisions made are based on the type of fracture and whether the parts of the tooth adapt well.

Clinical Significance

When faced with the need to restore a tooth fragment to its original place, the dentist should seek to ensure it is rehydrated for 15 minutes. The best choice for a reattachment technique is avoiding any further preparation and using an adhesive system associated with an intermediate composite that offers good mechanical properties. This should provide recovery of some of the strength lost in the fracturing of the tooth.

de Sousa APBR, França K, de Lucas Rezende LVM, et al: In vitro tooth reattachment techniques: A systematic review. *Dent Traumatol* 34:297-310, 2018

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EMERGENCIES

Medical emergencies in a dental practice setting

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BACKGROUND

Medical emergencies are not common in dental practices but they do occur often enough that dentists need to be prepared to address them. Both dental practitioners and their teams should be confident and current with their medical emergency management skills if they are to correctly provide the initial care required in an emergency situation. A survey was done to assess the prevalence and incidence of medical emergencies in the dental setting as well as dental professionals' level of confidence, degree of knowledge, and attitudes toward medical emergency management training.

METHODS

A scoping review was undertaken to provide the needed data. The 5 states of the review included identifying the research question, identifying studies, selecting studies, charting the data, and summarizing the results. A total of 24 articles were included, with 16 coming from Asia and 9 of these including 101 to 200 participants.

RESULTS

Prevalence and Incidence of Medical Emergencies in Dental Settings

Data indicated that over half of the dental practitioners currently practicing will be required to perform some type of medical emergency management during their careers. The prevalence of diagnosable medical emergencies was highest for syncope, followed by an epileptic episode and hypoglycemia. Many practitioners were faced with medical conditions that they couldn't diagnose.

The studies showed between 10% and 16% of the dentists have been required to provide urgent care for a serious cardiac event. Dentists were called upon to provide anything from direct patient resuscitation to calling an ambulance for critical patient transport to a hospital. Seventy-seven percent of respondents from the United States faced a patient with at least 1 sign of a cardiac emergency and had dealt with higher rates of unresponsive patients in recent years compared to the past.