



Pain-Free Dental Treatment in Children-with or without Local Anaesthesia?

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Early dental treatment intervention is felt to be desirable, as once the caries has progressed and a large cavity has developed, simple restorations are considered to be inadequate. Badly decayed primary teeth may well require more complex treatment including pulp therapy, followed by the placement of preformed crowns. Supporters of this treatment philosophy argue and demonstrate that these treatments are highly effective and that behavioural management techniques exist to ensure young children can comply with treatment and that any pain and discomfort associated with the procedure can be controlled [1]. This approach could be successful in the hands of specialist practitioners but not too many dentists these days- in the world-perform the best and the latest painless treatments in nature and therefore help children to keep their sparkling wide smiles right on their faces. Handling children as patients definitely requires a lot of skills and patience and a dental armamentarium too. These skills and equipments help the child having a pleasant dental check-up experience without living in fear of being traumatized with the pain.

But- because dental treatments may be painful- appropriate local anesthesia is necessary to reduce pain during such treatments. In adult patients pain control can be merely achieved by effective local anesthetic techniques but in paediatric clinical conditions to provide state-of-the-art, evidence-based, precision interventional pain management services can be challenging. It is because pain control in children means;

1. To pay attention to the other factors distressing the child such as fear of the unfamiliar environment and people, parental distress, people in uniforms, needle avoidance, fear of injury severity [2] etc.
2. Anxiety and fear can augment the pain. However, Versloot [5], *et al.* noted a positive correlation between patients who were more anxious and their perceived pain.

3. Local anesthesia is administered to reduce pain during dental treatments, but may itself cause pain and contribute to increased dental fear [3].

However- To do or not to do LA (local analgezia)?

First option/To do !`

The Gold standard for pain control/ analgezia is sedation via General anaesthesia. But this high tech specialisation is not available in every clinic and the balance between risks and advantages is often a serious decision issue the author prefers to count on the normal office condition. The classic dental local anesthesia using conventional syringes- despite careful anesthetic procedures, can cause pain for various reasons, including soft tissue damage during penetration of the oral mucosa, pressure from the spread of the anesthetic solution, temperature of anesthetic solution, low pH of anesthetic. Needle breakage during the administration of dental analgezia in children -even is a extremely rare event- such events are still reported and possible [4].

Many devices have been introduced that can inject local anesthetic into the tissues at a set speed. Collectively, these are "computer-controlled local anesthetic delivery" (CCLAD) devices. Termed [painless anesthetic devices] the Computer-controlled local anesthetic deliveries (CCLAD) reduce patient pain during local anesthesia because slowly administers anesthetics by using a computerized device to control the injection speed. The most widely known devices of this type include the Wand® (Milestone Scientific, Livingstone, NJ), Comfort Control Syringe (CCS; Dentsply, USA), QuickSleeper (Dental HiTec, France), and iCT (Dentium, Seoul, Korea). However, using CCLAD some studies resulted in less pain and more effective anesthesia in adults than in children [6].

Second option/ Not to do!

Clinically, removal of caries is performed by two methods namely conventional and ultra-conservative. Caries removal by conventional procedures is accomplished with high-speed rotary equipment, ART, stainless steel burs, tungsten carbide burs, and hand excavators, but have disadvantages of causing dental anxiety due to drill, pain, local anesthesia, excess removal of tooth structure, removal of both infected and affected dentin, and can lead to adverse effects to the pulp due to the heat generated at the cutting ends.

ART (the new treatment method without LA) uses manual excavation of dental caries without the use of local anesthesia and restores cavity with glass ionomer cement – an adhesive restorative material that bonds to tooth structure chemically and releases fluoride which helps in remineralization. Chemo-mechanical caries removal methods are known to be more effective compared with conventional methods in pain reduction. In addition, dental anxiety decreased compared to the control group, and co-operation was more positive. Therefore, it may be a useful alternative to conventional methods in children and adolescents, but further verification through additional studies is needed [7,8].

Conclusion**To do or not to do LA (Local analgezia)?**

A Paediatric oriented pain center community providing comprehensive, multidisciplinary pain management services in Dentistry under one roof is still missing. Protocols and training in pain relief in children for all staff involved in patient care is essential to ensure quality and time management.

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