LASERS AND THEIR APPLICATION IN PEDIATRIC DENTISTRY

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Pediatric dentistry's mission in delivering care to our young patients is simple: provide optimal preventive, interceptive, and restorative dental care in a stress-free environment. The goal of paediatric dentistry is to provide preventive education to parents and patients as well as interception and therapy of dental diseases in a minimally invasive way using a stress-free approach. Modern dental medicine seeks to use an approach that is minimally invasive.

The most commonly used lasers in dentistry include holmium yttrium aluminium garnet (HO:YAG), neodymium-doped yttrium aluminium garnet (Nd:YAG), carbon dioxide laser (CO2), erbium-doped yttrium aluminum garnet (Er:YAG), neodymium doped yttrium aluminum perovskite (Nd:YAP), gallium arsenide (GaAs) (diode), erbium, chromium doped yttrium scandium gallium garnet (Er-Cr:YSGG) and argon lasers enable for minimally invasive dentistry for hard- and soft-tissue procedures. This paper offers a revision and a discussion of the international literature, showing also some clinical procedures related to these scientific studies. An electronic search was carried out in IranMedex, InterScience, Scopus, Science Direct, PubMed, ProQuest, Medline and Google Scholar databases to find relevant published articles.

Laser applications on hard tissues include caries prevention and detection and application for sealing of pits and fissures, application for cavity preparation, carious removal and pulp therapy. Soft tissues laser applications in Pediatric Dentistry include application in oral surgery as well as in periodontics and orthodontics. Lasers allow pediatric dentists to provide optimal care without many of the fear factors that result from conventional dental techniques in addition to photobiostimulation or therapeutic lasers that produce their healing benefits without producing heat. Because many children may experience laser treatment as their first contact with dentistry, there is a possibility that a new generation of patients will grow up with a different attitude toward dentistry.

Parents are enthusiastic about being able to offer their children the advantages of laser care. It is essential to have a good knowledge of laser operation and of which type of laser is most appropriate for each lesion. The choice of optimal energy parameters is a requirement for successful laser caries treatment in pediatric dentistry. The benefit of laser dental treatment has been shown to be the greatest in children.

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