First introduced in the early 1990s, dental lasers are now used in almost every area of dentistry. DT Asia Pacific had the opportunity to speak with Dr Kirpa Johar, a dentist from Bangalore in India who received his dental laser education from the University of Vienna, about new trends in the field and the difficulties in Asia of it becoming a mainstream product despite its clinical benefits.

Last year, the first carbon dioxide (CO₂) laser, which is also suitable for hard-tissue indications, received approval by the Food and Drug Administration in the US. Could this be the next big thing in laser dentistry, in your opinion?

A CO₂ laser receiving FDA approval for hard-tissue indications looks promising and could definitely be a game changer, as it could alter the way we understand laser dentistry right now. We will have to wait and see how things develop in this regard.

The laser community is split about whether CO₂ or erbium-based lasers are the superior technology. Which type do you think is better suited to dental applications?

CO₂ lasers are usually considered to cut faster and with more precision. They also offer several advantages, such as galvanometer manipulation of the beam, a foot pedal to control speed and the ability to change the spot size with a tap on the touch screen. However, in Asia, being a price-sensitive market, the cost of dental equipment is always a decisive factor. I think a performance evaluation comparing erbium and CO₂ lasers supported by more clinical studies would provide us with a better understanding of which technology is more suited to which application.

Since dental lasers were introduced in the early 1990s, the range of treatments has expanded from soft-tissue treatment to cosmetic dentistry and endodontics, for example. In which areas of dentistry is this technology most commonly used at the moment?

In this part of the world, dental lasers are commonly used for soft-tissue applications, including surgical, cosmetic and endodontic sterilisation. A contributing factor to this trend is that diode lasers have become more affordable and are available on the market in much larger variety. As lasers allow surgical procedures on soft tissue to be performed with no sutures and less anaesthesia, they are increasingly used in surgical and mucogingival procedures.

Is this one of the fields in dentistry to have benefited most from dental lasers?

Besides mucogingival procedures, I personally think that periodontal treatment has gained most from the use of laser technology. More patients are definitely motivated to undergo various periodontal procedures done with lasers compared with conventional surgery. Flap surgeries where bone loss is not very advanced, release of tongue-tie in infants, gingivectomies and operculectomies are some of the procedures that are simplified with laser.

Wound healing appears to benefit particularly from laser therapy. Could you explain why?

In my practice, I have seen good results in wound healing in cases in which I have used laser therapy for...
soft-tissue injuries and lacerations in the orofacial region after trauma, as well as in post-extraction cases. Post-operative discomfort was reduced too.

The biostimulatory effects of laser have been thoroughly investigated. In vitro experimental evidence has demonstrated the acceleration of collagen synthesis in fibroblast cultures. Increased formation of granulation tissue and increased rates of epithelialisation in laser-irradiated wounds were some of the effects found in in vivo tests on animals. Low-level laser therapy has proven to be a great boon in wound healing.

_With a penetration into dental practices of 20 to 50 per cent, dental lasers cannot exactly be called a mainstream product. Would you agree with that statement?_

It is true that dental lasers are not very common, even in technologically advanced countries. In Asia, the use of laser dentistry is still marginal. I remember when I started working with dental lasers in my practice eight years ago, this field of treatment was completely unknown and the benefits of lasers were not yet fully understood then. Awareness among the dental community however has improved and the market is growing, but we still have a long way to go in lasers being recognised as a mainstream product.

_You offer international laser dentistry courses in India. What is the most common misconception concerning laser technology that you have encountered there?_

I think the most common misconception still is that laser dentistry is for the elite and that it will not work in the practice owing to the cost–benefit ratio. However, more dentists have recently begun to realise that lasers can improve their patient experience and help them add more procedures to the practice, which in turn makes it more profitable and rewarding.

What is clearly lacking in this field is unbiased quality education. Dentists need to understand that with the use of dental lasers they would be providing better dentistry to their patients and would make their own work more comfortable, which would in turn lead to happier patients, more referrals, and the subsequent overall growth of their practice. My academy, Laser Dentistry Research and Review, is working in this direction and we hope to become a centre in Asia known for helping dentists receive the best in laser dental education and add value to their practice.

Once the use of dental lasers increases, more competitors will come into the market, which would help to keep prices competitive—which is good as long as the competition stays healthy. However, cost still plays an important role in the acquisition of the technology, particularly when it comes to hard-tissue lasers.

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_What would manufacturers have to do to make this technology more attractive to the masses?_

Hard-tissue lasers need to evolve to a stage where they can be expanded to crown preparation and implant dentistry. If erbium lasers were capable of providing a wider range of applications along with routine soft-tissue procedures, this would make them more attractive. Dental Er:YAG lasers are now being developed for non-surgical facial aesthetic treatment and non-surgical treatment of sleep apnoea. Adding these procedures to the practice by incorporating laser technology will also help dentists make the investment in lasers a more viable option.

_Laser experts and companies claim that laser technology is the future of dentistry. In your opinion, what role will the technology really play in clinical practice?_

Laser dentistry definitely changes the way we practise dentistry. It is minimally invasive, simplifies things and reduces patient discomfort, as well as post-operative complications. It gives the dentist scope to expand his or her services to other fields, such as facial aesthetics or sleep apnoea treatment. These are some of the factors that make me believe that laser dentistry is the future of dentistry.

Thank you very much for the interview.