Dear reader,

Have you visited Tokyo lately? In a few weeks or days, depending on where you get this edition, the next congress of the International Federation of Endodontic Associations (IFEA) is going to take place in the capital of Japan and for the first time, the Dental Tribune International Publishing Group will be represented not only by our Japanese licence partners Medical Tribune Group but also by Modern Dentistry Media from South Africa, who recently joined our network and will be organising IFEA’s next congress in 2016. If you happen to be there, I encourage you to pay them a visit.

For all those readers missing out on the event, our newest endodontic supplement on pages 19 to 31 could be worth a look, as promising concepts like intentional replantation and retreatment are discussed there by renowned experts in the field. In addition, Dr Gary Glassman will give you an extensive overview about endodontic irrigants and how they should be delivered.

View about endodontic irrigants

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A threat to the dental professional

The main purpose of the use of robots is to increase the precision, quality and safety of surgical procedures. Following the developments in industrial robot technology, robotics has found its way into the medical field and is used in a range of surgical disciplines. Robotics is not yet used in dentistry even though all the necessary technologies have already been developed and could easily be adapted. Some of the technologies are already used in dentistry, such as image-based simulation of implant surgery followed by the use of surgical guides, and creating digital impressions of preparations using an intra-oral scanner, after which a milling device produces the restoration, but we have not yet seen any robots able to prepare teeth for crowns, inlays or bridges.

Such a robot would fundamentally be a dental drilling device coupled with a navigation device to determine the correct position of the device in relation to the patient. The robot would either be operated directly by a dentist or be preprogrammed to perform its functions based on imaging data (CT scan). Finally, an intra-oral scanner would be used to make digital impressions. This data would then be transferred to the lab to produce temporary crowns or bridges in a very short time using a milling machine and to manufacture the final restorations in much shorter time than with conventional procedures.

Robotics could offer dentistry improved accuracy, predictability, safety, quality of care and speed of treatment. One might wonder why robots have not yet been introduced to dentistry, as the functions needed are relatively simple. An explanation could be that it is an example of a disruptive technology, meaning that the current manufacturers of dental equipment might fear a negative effect on their current business and the alienation of dentists, as robots might be seen as a threat to dental professionals.

A threat to the dental professional

In the first part of this century, there has been an increase in understanding and experimenta- tion with stem cells as a primary tool in the expanding regenerative medicine and tissue-engineering revolution. Regenerative endodontics is one of the significant developments among these biological approaches that will possibly involve a combination of disinfection and dehiscence of infected root-canal systems to regenerate apical tissue. Although the challenges of introducing these methods in the endodontic field are substantial, the potential benefits to patients and the profession are equally ground-breaking.

Regenerative endodontics can be defined as biologically based procedures designed to create or deliver tissue to replace diseased, missing or traumatised tissue of the pulp-dentine complex. Two concepts currently exist in regenerative endodontics; the first is the active pursuit of pulp-dentine regeneration to implant or re-grow pulp, and the other is the formation of new living tissue from the stem cells present in the root, allowing root development.

Contact Info

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