On the Use of Dental Implants

The use of endosseous implants to support dental prostheses is a relatively recent addition to the dental treatment armamentarium. Although implants have been available since the late 1930s, it was only after the identification of osseointegration as a clinical phenomenon that the predictability of implant therapy was recognized. Indeed, the words of the German philosopher Arthur Schopenhauer ring true relative to implant therapy. He said "all truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident." Today we find ourselves in the third category, where the success of endosseous implants appears to be a foregone conclusion.

Indeed, implant therapy works in the hands of most clinicians as long as those clinicians plan ahead and perform the required procedures with an appropriate level of care and caution. In this issue of *JOMI* you will find recommendations from the Academy of Osseointegration titled "Guidelines for the Provision of Dental Implants." These guidelines are provided to assist clinicians in their attempts to achieve the best care possible for their patients. The guidelines clearly identify the need to treat patients rather than simply placing screws in jaws. The guidelines do not, however, obviate the need for skill development or the constant accumulation of knowledge. Instead the guidelines will simply assist the clinician in identifying areas that demand ongoing scrutiny.

As a member of the committee that developed the guidelines, I believe that they are comprehensive. I also know, however, that the information provided in this document does not identify all the factors that are necessary for successful evaluation, treatment, and ongoing maintenance of every patient. We still have much to learn about implant therapy.

The ultimate goal of therapy is easy to understand. Patients desire dental restorations that are comfortable, functional, and esthetic. Clinicians want these outcomes but also desire long-term stability of the restorations and the supporting structures. It's as simple as that! The problem is how we arrive at these specific goals and how we prioritize the goals. The published guidelines help explain how to reach the goals, but the only way to prioritize them is by frank discussion with the patient, as it is he or she who determines successful accomplishment of the goals.

The biggest obstacle to open discussion is the fact that there are always unknown outcomes in any medical or dental treatment. Much of dental research is conducted to reduce or eliminate the unfavorable outcomes. Unfortunately, we lack specific identifiers for situations that will be troublesome. For example, the diligent work of Tarnow et al has helped identify the likelihood that the interdental papilla will fill the space between the gingival aspect of the interdental contact and the coronal aspect of the interdental bone. Despite the fact that we now have measurements to guide us, these measurements are not reliable 100% of the time. The difficult part of this situation is that we do not know when any specific patient will be an outlier. What would be helpful are pretreatment factors that can be evaluated to identify the outliers before treatment is initiated. These predictive factors, if identified, would make discussions with patients even more insightful.

Likewise, it would be nice to know when treatment is likely to succeed over the long term. Indeed, we are fortunate that implant dentistry is highly predictable, but the rare unfavorable results remain our nemesis. Wouldn't it be beneficial if we could identify short-term clinical outcomes that predict the long-term clinical results? These early surrogates would need to be validated against the long-term outcomes, but that can only occur with the passage of time. When discussing long-term results, the passage of time translates to years or even decades.

At this point the guidelines amount to specific statements that were created through consensus. This consensus was developed in response to a systematic review, the AO-sponsored State of the Science on Implant Dentistry consensus conference. Answers to all the clinical questions proposed by the conference were not established. The lack of definitive answers is reflective of the current scientific knowledge rather than a lack of effort on the part of the systematic review process. The use of consensus-based guidelines is a reasonable intermediate step that allows informed clinical practice while scientific investigation continues to refine the guidelines. Indeed, this is a living document that will evolve with time and be changed in response to better understanding of osseointegration.

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