Primary stability vs. viable constraint: A need to redefine

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Any regular reader of the Journal of Oral & Maxillofacial Implants or indeed of any other publication on dental implants could not fail to have noticed how much attention has been focused on Primary Stability. The concept of primary stability is not new, indeed as early as the 1970s, there were studies emphasizing the need to establish mechanical stability to ensure an uninterrupted healing of the bone-implant interface was evident in the orthopedic literature as it pertains to hip prostheses.

By the 1990s, numerous reports were being published on immediately loading of dental implants and the ground breaking work by Nanda and co-workers on the application of Resonance Frequency Analysis (RFA) came to the fore with statements that achievement of implant stability was a prerequisite for long term positive outcomes.

At the same time, Meredith recognized it was possible for clinical firm implants with poor axial stability to still be prone to failure. Of course, Brånemark recognized this in his early work, proposing as he did a period of submerged healing because of his concerns for any destabilization of the bone-implant interface during the early healing phase. However, today we all recognize that such protective protocols are frequently unnecessary, with wide spread acceptance of not only transmucosal healing but also immediate temporization and/or loading. So how do we define primary stability?

The most simple definition is one of mechanical friction between the implant and bone. Certainly, we all appreciate that this contrasts with secondary implant stability where secondary stability is achieved by biological integration, i.e., osseointegration.

To write this editorial piece. Could it be that required 100 Ncm of torque? I also believe that today there is increasing focus on short implants. However, I would point out that a strong correlation has been shown to exist between ISQ and implant length and/or as, for immediate loading, I also believe a longer implant with a higher ISQ, inserted at a lower insertion torque, will yield a more favorable outcome.

Note

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References


Editorial note: A complete list of references is available from the publisher.