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Primary and secondary stability of dental implants by resonance frequency analysis

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Background: Implant loading can be either immediate or delayed. The success of the implantation in either case depends on the sufficient primary and secondary stability.

Aim: to measure the primary and the secondary stability of ITI implants using a Resonance Frequency (RF) device (Osstell) to detect changes in stability during early healing following implant placement and to determine whether the implant stability quotient /ISQ) could predict proper loading time.

Methods: RF assessments were performed on 15 non-submerged titanium dental implants in 10 mandibles. Implant stability was measured at placement and weekly until week 6, and then at 8 weeks and 12 weeks.

Results: At placement, the mean ISQ obtained with the magnetic device was 77.2 /95% confidence interval [CI], 67 to 85); it decreased to 75.6 /95% CI, 70 to 80) at 12 weeks. Changes indicated a pattern of decreased mean stability from 1 to 5 weeks post-placement, and significantly increased mean stability from 5 to 12 weeks.

Conclusions: The results of the present study may be indicative of a period of time when loading might be disadvantageous following implant placement. It seems that either immediate or post-early implant placement loading are suitable in terms of sufficient stability. These suggestions need to be further assessed through future studies.

Keywords: Dental Implants; Implant Stability Quotient; Primary Stability; Resonance Frequency Analysis; Secondary Stability.

Biography

Arash Daraeighadikolaei has completed his General Dentistry at the age of 25 years from Ahvaz Jundishapur University, Iran, 2007. And this research is actually his thesis project which he had conducted under supervision of Dr. Mehran Shokri, OMFS, DMD in Ahvaz dental school.

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