In-patient comparison of immediately loaded and non-loaded implants within 6 months

Authors: Lorenzoni M.; Pertl C.; Zhang K.; Wegscheider W.A.

Source: Clinical Oral Implants Research, Volume 14, Number 3, May 2003, pp. 273-279(7)

Publisher: Blackwell Publishing

Abstract:

According to the Brånemark protocol, a stress-free healing period is one of the most emphasised requirements for implant integration. Recent studies have encouraged a progressive shortening of the healing period and immediate loading has been proposed for the edentulous mandible. This prospective study evaluated the clinical outcomes of 14 immediately loaded FRIALIT-2® implants compared with 28 non-loaded controls in an in-patient study. The results were based on clinical stability and on changes of bone level from implant placement to abutment connection 6 months after insertion. In the course of our investigation, seven patients with edentulous mandibles have been treated with 43 implants following an immediate-loading protocol. Six FRIALIT-2® implants were placed in the interforaminal region located at positions 34, 33, 32, 42, 43, 44. Bone level in relation to implant margin was measured and recorded. In order to obtain an in-patient comparison of immediately loaded and non-loaded implants, the ones at 33 and 43 were chosen to be immediately loaded by a Dolder-bar retained overdenture. The implants in position 32, 34, 42 and 44 were covered and left to heal. After a healing period of 6 months, second stage surgery was carried out. The clinical criteria to be checked at this point were survival, Periotest values and marginal bone level at the loaded and non-loaded implants. The mean Periotest value was -2.7 for the loaded and -5.6 for the non-loaded implants. The Mann–Whitney U-test showed that the difference was highly significant ($P < 0.001$). The mean bone level changes at prosthetic delivery were 0.9 mm resorption for the loaded implants and 0.33 mm for non-loaded implants. The difference was highly significant ($P < 0.001$). No implant failures were observed up to the prosthetic restoration 6 months post insertion. The results of this investigation allowed for direct comparison of implant survival and clinical results between immediately loaded implants and standard implants. Clinical bone changes at the 6-month evaluation demonstrated significantly higher crestal resorption around loaded implants. This fact was confirmed by higher median Periotest values (-3 vs. -6) of immediately loaded implants. According to the outcome of this study, immediate loading of two interforaminal implants with a Dolder-bar resulted in an intimate bone apposition comparable with implants with submerged healing. Nevertheless, the coronal bone level as well as clinical stability (PTV) were significantly lower in the case of the immediately loaded implants. Future studies will be necessary to evaluate marginal bone resorption, Periotest values and clinical success rates of mandibular immediately loaded implants in the long-term.