FIXED MANDIBULAR RESTORATIONS ON THREE EARLY LOADED REGULAR PLATFORM BRÄNEMARK IMPLANTS

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This prospective multicentre study evaluated 3 years success rates of 20 fixed 10-12 unit mandibular restorations installed on 3 Brånemark implants loaded within 1 month after 1-stage surgery. The functionally loaded implants were 13-15 mm long, regular platform and installed in a tripod position: 1 in the symphysis area and 2 anterior to the mental foramen in the bicuspids area. 2 additional implants were installed and served as a submerged control and unloaded 1-stage control. Implant stability and marginal bone level was measured on peri-apical radiographs after 1, 3, 12 and 36 months. The failure before loading was 1/60 (1.7%); this lost implant was replaced by a control implant keeping the loaded implant number 60 in total; 5/60 failed during the first year of loading (8.3%) and consequently led to a complete prosthetic failure in 3/20 patients (15%). The cumulative failure rates of the loaded implants after 1 & 3 years are 9.0 % and marginal bone loss was 0.9 ± 1.0 mm & 1.4 ± 0.4 mm respectively. No failures occurred with the control implants. The unloaded one-stage control lost 1.6 ± 0.6 mm bone, being equal to the loaded fixtures. The submerged control implants lost 0.3 ± 0.9 mm. The detectable bone loss reflects the establishment of a biological width and seems not related to loading per se.

In the complete arch restoration supported by 3 implants, the anterior implant is subjected to a combination of tension and increased bending forces. The latter increase the risk for overload and mechanical failure of components, leading to implant failure. With only 3 implants supporting a fixed restoration, 1 implant failure automatically leads to a total prosthetic failure and re-operation of the patient becomes mandatory. This is time consuming, expensive, creates burdens for surgeon, prosthodontist and patient and may lead to liability problems. In the present study 9% of the loaded implants and 15% of the inserted prostheses failed within 1 years of function. This treatment outcome is poor in comparison with what can be expected in the mandible on 4-6 implants. With the present knowledge and with the available implant components, it seems too risky to advise this minimised concept in a large patient population.