Three-year multicentric study of osseointegrated Impladent implants

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Impladent was among the first systems introduced on the market in 1992 in CR and since that time has been subject to several analyses presented in professional periodicals. Our objective is to consolidate these studies and present a longitudinal clinical study of a representative collection of Impladent implants, inserted over a three-year period.

Impladent is a system of two-stage implants, of either of a cylindrical or screw type. The implants are available with a sand-blasted or hydoxyapatite coated surface. All these modifications are available with a diameter of 3.6 mm and lengths of 8, 10, 12 and 14 mm. In addition, there is a titanium self-tapping screw with a diameter of 2.9 mm and lengths of 12, 14, 16 and 18 mm. There is a wide range of abutments supplied: direct, with a 15 or 25 grade angulations, with anti-rotary elements, ball attachments, for temporary supraconstructions, etc. We recorded basic information on the patients (age, sex, diseases) and the implants applied (type, length), the indication and localisation, dates of first and second implantation phase, type of supraconstruction and follow-up data. For our statistical analysis, we applied the two-selection t-test and the relative frequency balance test. We then determined the success curve (life table) applying the Kaplan-Meier' method.

Over a period of three years, 529 patients received a total of 1264 implants. In total, 698 implants were applied in the maxilla and 566 implants were applied in the mandible. At the conclusion of the monitoring, the healing phase of 983 implants (77.8%) was successfully completed. Osseo-integration was unsuccessful in 23 cases (primary failure), the success rate of the healing phase therefore being 97.7%. Fifteen of the osseointegrated implants were left dormant because the patient failed to appear for further treatment. Supraconstructions were applied to the remaining implants. The longest period from the application of an implant until the final check-up was 1110 days (437 days on average) and the longestperiod from the surgery phase to the final check-up took 915 days (264 days on average). We carried out final evaluation with respect to 950 implants, because 13 patients, comprising a total of 33 implants, failed to accept the follow-up care. Consequently, a total of 96.6% of implants were successful. We classified additional 32 implants (3.4%) as a failure, of which 23 were primary failures and 9 were secondary failures.

The success rate was also expressed on the basis of a "life table" analysis. The results are comparable with results exhibited by prestigious foreign implants. The statistical analyses of coated implants did not reveal any significant difference between the maxilla and mandible. Nor was there any significant difference in the number of primary and secondary failures. During the first twelve months from implantation, the risk of failure was not higher than during the subsequent period. Authors attribute these positive properties to the quality of hydroxyapatite implant coating. No event of delamination or dissolution of the coating has been reported. The authors believe that coated implants are particularly appropriate for use in areas of poorer bone quality. This hypothesis shall be examined in further research.

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