

ALL-ON-4[®] TREATMENT CONCEPT FOR THE REHABILITATION OF THE COMPLETELY EDENTULOUS MANDIBLE: A 7-YEAR CLINICAL AND 5-YEAR RADIOGRAPHIC RETROSPECTIVE CASE SERIES WITH RISK ASSESSMENT FOR IMPLANT FAILURE AND MARGINAL BONE LEVEL

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BACKGROUND

Studies are needed to evaluate long-term outcomes of the All-on-4[®] treatment concept (Nobel Biocare AB) for rehabilitation of edentulous mandibles by assessing marginal bone levels and risk indicators for implant failure.

PURPOSE

To evaluate 7-year clinical outcomes and 5-year radiographic outcomes of the All-on-4 treatment concept.

MATERIALS AND METHODS

This retrospective case series included patients admitted for implant rehabilitations in the mandible, who were followed for 7 years clinically and 5 years radiographically. Primary outcome measures were cumulative prosthetic and implant survival using patient as the unit of analysis (Kaplan-Meier product limit estimator). Secondary outcome measure was marginal bone level (MBL) at 5 years. Variables associated with implant failure were analyzed using the Cox proportional hazards regression model to calculate hazard ratios (HRs) with 95% confidence intervals (CIs). Binary logistic regression was used to compute odds ratio (OR) with 95% CIs for variables associated with MBL 32.8 mm at 5 years.

RESULTS

A total of 324 patients (194 women, 130 men, average age = 58.9 years) were rehabilitated with 1,296 implants supporting 324 full-arch fixed immediately loaded mandibular prostheses. Sixty-four patients (19.8%) were lost to followup. Prosthetic survival was 323/324 (99.7%), and 14 patients lost 18 implants, with an estimated cumulative survival rate of 95.4% at 7 years. Variables associated with implant failure were smoking (HR = 5.28; 95% CI: 1.33, 20.91]) and the learning curve effect ($0.69 < HR < 0.33$ for more experienced levels). Mean MBL at 5 years was 1.81 mm (95% CI: 1.70, 1.92), and smoking was associated with MBL 32.8 mm (OR = 2.4; 95% CI: 1.02, 5.62).

CONCLUSIONS

The high implant and prosthetic survival rates and excellent MBL outcome confirm the predictability and safety of the All-on-4 treatment concept over a longer term than previously reported.