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Original Research

Long-term outcomes of dental implants placed in elderly patients: a retrospective clinical and radiographic analysis

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ABSTRACT:

Background: To analyze long-term outcomes of dental implants in elderly patients. **Materials & methods:** A total of 20 subjects were enrolled. 50 implants were placed. The survival rate of these implants was recorded and analyzed. Information on implant status and oral and general health data was collected. The data was recorded. The result was analyzed using SPSS software. **Results:** A total of 20 subjects were enrolled. The total of 50 implants were placed. The subjects were analysed and survival rate was noted. The age group of 60-70 years depicted the survival rate of 90% and 71-80 years showed 93.4%. **Conclusion:** Elderly patients and that age alone does not seem to affect the implant survival rate. **Keywords:** survival, failure, implant.

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INTRODUCTION

The discovery of osseointegration by Branemark in 1969¹ opened up a multitude of new possibilities for restoring health, esthetics, and function in edentulous patients and those with extensive damage to their dentition. Therefore, implant therapy has revolutionized dental practice. Along with the implant ad modumBranemark, intramobile cylinder implants (IMZs) were among the first fixtures used in implant therapy. The IMZ implant system was particularly popular in the 1980s and the early 1990s, before it was replaced by the Camlog implant system in the late 1990s. The key component of the IMZ implant system is the intramobile element (IME), whose purpose is to simulate the viscoelasticity of the periodontal ligament and reduce the forces transmitted to the marginal bone-implant interface.² Since the implant and IME are rigidly connected, the IME serves to reduce the displacement differential between the osseointegrated implant and a natural tooth while also impeding the intrusion of natural teeth, which can occur if a nonrigid interlock is used.³ Several previous studies have reported excellent results on survival rate and radiographic and clinical data. 3-5

Immediate implant insertion and provisionalization procedures have many advantages, one of which is the ability to preserve gingival and bony architecture.^{6,7}

Other advantages may include shorter treatment duration, reduced costs, improved patient comfort, and immediate estheticresults.^{6,8} Achieving esthetic success is suggested to be dependent on an ideal three-dimensional implant position, in the apico-coronal, anterior-posterior, and mesio-distal dimensions, allowing the maintenance of adequate bone volume and consequently soft tissues volume surrounding the implant surface.^{9,10} Hence, this study was conducted to analyse long-term outcomes of dental implants in elderly patients.

MATERIALS & METHODS

A total of 20 subjects were enrolled. 50 implants were placed. The survival rate of these implants was recorded and analyzed. Changes in marginal bone levels were also analyzed in serial radiographs, and Cox regression analysis for implant loss was performed. The overall implant survival rate was calculated. Information on implant status and oral and general health data was collected. The data was recorded. The result was analyzed using SPSS software.

RESULTS

A total of 20 subjects were enrolled. The total of 50 implants were placed. The subjects were analyzed and

survival rate was noted. The age group of 60-70 years depicted the survival rate of 90% and 71-80 years showed 93.4%. The survival and failure for 81-90 years was 100% and 0% respectively. The failure rate for 60-70 years was 10% and in 71-80 years was 6.7%.

Table 1: surviving and failed implants according to age

Age groups	Surviving n (%)	Failed n (%)	Total
60-70	27 (90)	3 (10)	30
71-80	14 (93.4)	1 (6.7)	15
81-90	5 (100)	0	5
Total	46	4	50

DISCUSSION

Following immediate placement and provisionalization of anterior maxillary single implants, a continuing gingival recession of the facial gingival tissue may also occur, along with possible spontaneous papilla regeneration over time, as suggested by a recent long term follow up (2-8 years) study, and supported by other systematic reviews.^{11,12} Nonetheless, a recent systematic review renders it difficult to draw clear conclusions regarding such recession.13 In addition, a recent RCT trial suggests that immediate provisionalization of implants placed at the maxillary esthetic zone fails to provide additional aesthetic results and that perhaps implant positioning is the most crucial for determining the facial mucosal level. ¹⁴ In the case of mucogingival recessions at the maxillary esthetic zone, immediate implant insertion and provisionalization was seen to significantly reduce initial mucogingival recession in a long-term (2-8 years) follow-up study. ¹⁵Hence, this study was conducted to analyse long-term outcomes of dental implants in elderly patients.

In the present study, a total of 20 subjects were enrolled. The total of 50 implants were placed. The subjects were analyzed and survival rate was noted. The age group of 60-70 years depicted the survival rate of 90% and 71-80 years showed 93.4%. A study by Park JC et al, determined the clinical and the radiographic outcomes of dental implants placed in elderly people older than 65 years. In total, 902 implants in 346 patients (age: 65-89 years) were followed up for 2-17 years following the implant surgery. The survival rates were 95.39% and 99.98% in the implant- and patient-based analyses, respectively (involving a total of 29 implant failures), and the marginal bone loss at the implants was 0.17 \pm 0.71 mm (mean \pm SD). The number of failures was greatest in patients aged 65-69 years. The Cox regression with shared frailty analysis showed that implant loss was significantly greater in those aged 65-69 years than in those aged 70-74 years (P < 0.05), and it varied between specific implant systems.¹⁶

In the present study, the survival and failure for 81-90 years was 100% and 0% respectively. The failure rate for 60-70 years was 10% and in 71-80 years was 6.7%. Another study by Mijiritsky E et al, studied addressing the outcomes of single immediate implantation and provisionalization at the maxillary esthetic zone are needed. A total of 15 patients (23 implants) who had been treated for single-tooth

replacement at the maxillary esthetic zone since 2002, underwent clinical and radiographic follow-up evaluations. Primary outcomes included mean Marginal Bone Levels (MBL), with Bleeding on Probing (BOP), implant success rate, prosthetic and esthetic complications evaluated as secondary outcomes. The implant success rate was at 100%. Bone remodeling processes were observed over the follow-up period, with 0.9 mm mean marginal bone loss observed during the first 6 years of observation, followed by -0.13 ± 0.06 mm mean loss after 6 to 18 years. The last finding suggests bone deposition, as reported by other studies (Donati et al., 2012). At the final radiographic evaluation, a mean MBL of 1.35 mm \pm 0.16 was demonstrated. No differences with respect to implant type or site were found. A generalized absence of BOP and esthetic complications occurred in two cases as a result of continuous adjacent teeth eruption versus obvious implant ankylosis. ¹⁷Marginal bone levels (MBL) after immediate implant insertion and provisionalization seem to be equally successful to those levels after early and conventional implant loading, as described by recent systematic reviews and meta-analyses.^{18,19} It may be assumed that a mean MBL may be reduced by 1.0 ± 0.6 mm from initial implant placement to 18 months thereafter for implants restored using the conventional approach. 20

CONCLUSION

Elderly patients and that age alone does not seem to affect the implant survival rate.

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