Patient Satisfaction with Single-Tooth Implant Therapy in the Esthetic Zone

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This prospective study assessed patient satisfaction before and after single-tooth implant therapy in the esthetic zone. Before implant therapy, patients wore an acrylic resin tissue-supported removable partial denture (RPD). A total of 153 patients were included. Self-administered questionnaires regarding function, comfort, and esthetics were used to measure patient satisfaction with the RPD and with the implant at 6 and 18 months post-implant placement. Overall satisfaction was explored with a visual analog scale. It was suggested that patient satisfaction with a single-tooth implant in the esthetic zone is high and it improved when compared with an RPD that patients wore before implant treatment. *Int J Prosthodont 2014;27:226–228. doi: 10.11607/ijp.3672*

The loss of an anterior tooth may adversely impact an individual's life,[1] and implant therapy now plays a prominent replacement role. Its success depends on implant survival, surrounding tissue health, esthetic appearance, and absence of complications. Patient-mediated concerns also determine successful treatment outcomes, although only a few specifically related studies have been reported.[2,3]

This report compared patient satisfaction before and after single-tooth implant therapy in the esthetic zone in patients who had previously worn tissue-supported acrylic resin removable partial dentures (RPDs). Patient concerns regarding function, comfort, and esthetics were addressed.

Materials and Methods

A total of 153 patients (45.7% men; mean age, 38.3 ± 14.7 years; age range, 18 to 80 years) with a missing tooth in the maxillary esthetic zone (95 central incisors, 31 lateral incisors, 12 canines, 15 first premolars) were included between January 2005 and June 2009. Patients were referred to the Department of Oral and Maxillofacial Surgery, University Medical Center Groningen, for implant treatment. The patients participated in clinical trials of different implant types and received an implant corresponding with the study that they were enrolled in (31 Replace Select Tapered, 31 NobelReplace Tapered Groovy, 31 NobelPerfect Groovy, 60 Straumann Bone Level). The following inclusion criteria were used: good general health or mild systemic disease (American Society of Anesthesiologists score of 1 or 2); at least 18 years of age; width of diastema ≥ 6 mm, adjacent to natural teeth; adequate oral hygiene (Modified Plaque Index and Modified Sulcus Bleeding Index scores ≤ 1). Exclusion criteria were active smoking and active periodontal disease.

Prior to implant placement, all patients had worn an acrylic resin tissue-supported RPD for at least 3 months (mean, 7.1 ± 7.6 months; range, 3 to 48 months). Patients wore an RPD as a definitive or provisional prosthetic solution. Three months after implant placement, implants were uncovered and screw-retained provisional composite crowns were placed. An anatomical emergence profile was created by adding or removing aspects of the crown to create more space or support for the soft tissue. After 3 months, definitive screw-retained or cement-retained ceramic crowns were made.

Before implant placement and 6 (T6) and 18 (T18) months thereafter (ie, 6 and 12 months after definitive crown placement), patient satisfaction was assessed using a self-administered questionnaire composed of questions and statements regarding function, comfort, and esthetics (Table 1). Furthermore, patients marked their overall satisfaction with the RPD and implant on a 10-cm visual analog scale (Table 1). Patients completed the questionnaires in the absence of an independent examiner.

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Table 1 Questionnaire and Mean Ratings Regarding Satisfaction with the Acrylic Resin Tissue-Supported RPD and Implant (Mean ± SD)

	Baseline (n = 153)	T6 (n = 151‡)	T18 (n = 152‡)
Statements to be answered on 5-point Likert-type scale, ranging from strongly disagree (score 1) to strongly agree (score 5).			
I feel ashamed for the RPD/implant.	2.1 ± 1.3*	1.0 ± 0.5	1.2 ± 0.6
I feel that the RPD/implant is loose.	3.2 ± 1.7*	1.1 ± 0.5	1.1 ± 0.5
I feel that the RPD/implant can be seen by others.	2.6 ± 1.4*	1.3 ± 1.1	1.6 ± 1.1
I feel that the RPD/implant is part of myself.	2.1 ± 1.3*	4.4 ± 0.7	4.6 ± 0.6
The RPD/implant affects my speech.	3.1 ± 1.6*	1.3 ± 0.9	1.2 ± 0.8
The RPD/implant affects my taste.	3.2 ± 1.6*	1.3 ± 0.5	1.1 ± 0.5
I regret that I chose the implant treatment.†		1.2 ± 0.4	1.2 ± 0.3
I would recommend the implant treatment to other patients.†		4.9 ± 0.5	4.7 ± 0.6
Questions to be answered on 5-point Likert-type scale, ranging from very dissatisfied (score 1) to very satisfied (score 5)			
How satisfied are you with the ability to eat with the RPD/implant?	2.3 ± 1.1*	4.7 ± 0.6	4.8 ± 0.6
How satisfied are you with the ability to speak with the RPD/implant?	3.5 ± 1.2*	4.8 ± 0.7	4.8 ± 0.5
How satisfied are you with the form of the crown of the RPD/implant?	3.8 ± 1.0*	4.5 ± 0.7	4.7 ± 0.6
How satisfied are you with the color of the crown of the RPD/implant?	4.2 ± 1.0*	4.6 ± 0.6	4.5 ± 0.9
How satisfied are you with the form of the gums around the RPD/implant?	3.3 ± 1.2*	4.1 ± 1.1	4.0 ± 1.0
How satisfied are you with the color of the gums around the RPD/implant?	3.8 ± 1.0*	4.5 ± 0.8	4.4 ± 0.6
Overall satisfaction on a 10-cm VAS, ranging from very dissatisfied (0) to very satisfied (10) (range)			
	5.0 ± 2.5* (0–10)	9.0 ± 1.3 (5.8–10)	9.0 ± 1.0 (5.5–10)

RPD = removable partial denture; T6 = 6 months postimplant placement; T18 = 18 months postimplant placement.
*P < .05 compared to T6 and T18.
†To be answered after implant therapy.
‡One patient did not attend the follow-up visit at T6, and one implant was lost.

Mean scores for each questionnaire item were calculated and statistically tested using the Friedman and post hoc Wilcoxon rank sum tests. Subgroup analyses were done using Kruskal-Wallis and post hoc Mann-Whitney tests to explore differences between the different implant types. A P value < .05 was considered statistically significant.

Results

Patient satisfaction with the implant was significantly higher on all items of the questionnaire (P < .05), whereas no significant differences were found between T6 and T18 (Table 1). The subgroup analyses of the implant types revealed no statistical differences in patient satisfaction.

Discussion

Studies on patient satisfaction before and after single-tooth implant treatment are scarce.[2,3] Comparison of the results of this study with those of others is therefore limited. In line with the present results, a decrease in discomfort after implant treatment has been reported among patients who wore an RPD before implant placement.[4]

No differences were noticed between the satisfaction scores at T6 and T18. This might be exemplary for a stable final result in time with low incidence of complications. Long-term research should reveal if patients remain satisfied with the implant.

It should be noted that the rather low satisfaction with the RPD might not be representative of the level of satisfaction in the general population wearing an RPD. All patients included in this study were seeking a prosthetic alternative to the RPD or wore the RPD as a provisional solution. This could have suppressed the satisfaction scores of the RPD in favor of the implant satisfaction scores.

A limitation of this study was that the questionnaire was not validated. Therefore, the results should be interpreted with caution and in a more relative context by comparing the scores at different time points, as done in this study. Validated questionnaires such as the OHIP-14 were not yet available in the Dutch language at the onset of this study. These questionnaires, however, are developed to measure oral disease–related disability in different patient groups and may not be suitable for patients with a missing anterior tooth. For instance, minimal attention is given to esthetics, a factor that could be very important for satisfaction with an anterior single-tooth implant.

Conclusion

Despite its limitations, this study suggests that patient satisfaction with a single-tooth implant in the esthetic zone is high. Compared with an RPD that patients wore before implant treatment, patient satisfaction improved significantly after implant treatment in terms of function, comfort, and esthetics.

Acknowledgments

The authors reported no conflicts of interest related to this study.

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Literature Abstract

Trends in death associated with pediatric dental sedation and general anesthesia

The authors attempted to quantify pediatric mortality in relation to dental anesthesia by reviewing media reports in the Lexis-Nexis Academic database and a private foundation website. Deaths of US-based children (≤ 21 years) that occurred in dental offices, ambulatory surgery centers, or hospitals, subsequent to receiving anesthesia for a dental procedure between 1980 and 2011 were analyzed. Providers of anesthesia were classified as general/pediatric dentist, oral surgeon, or anesthesiologist. Results showed that over 50% of the deaths occurred in children 2 to 5 years old (n = 21/44), in an office setting (n = 31, 70.5%), and with a general/pediatric dentist (n = 25/44). Most deaths were associated with a sedation anesthetic (17 of 25) as opposed to local anesthesia or general anesthesia. Eleven cases were reviewed by an external body to determine whether a deviation from standard practice had contributed to the cause of death. Adverse ruling was made in 9 cases. Due to the limitation of the study scope, authors commented that the findings might not be representative of all pediatric dental deaths. However, they opined that some of the pediatric deaths could have been prevented by a reduction in the need for dental procedures through aggressive preventive care, or through better observance of standards of care in rendering care to patients who require general anesthesia.

Lee HH, Milgrom P, Starks H, Burke W. *Pediatric Anesthesia.* 2013;23:741–746. **References:** 11. **Reprints:** Dr Helen H. Lee, Department of Anesthesiology, University of Washington, 4800 Sand Point Way NE, M/S W-9824 PO Box 5371, Seattle, WA 98105, USA. Email: Hlee4nd@Hotmail.com—*John Chai, Evanston, Illinois, USA.*