

Subjective Satisfaction of Clinician and Short-Term Clinical Evaluation of Osstem TSIII SA Implant

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Objective

Recently Osstem implant released a new product line, TSIII SA, which is processed by sand blasting using alumina and acidetching.

This new implant features a tapered design, with an open thread equipped on top to minimize necrosis of the alveolar bone, while its helix cutting edge allows self-tapping and easy adjustment of the installation direction. The apex is designed to improve probing ability into the bone tissue, and fixing ability on the bottom. The manufacturer explains the benefits of the TSIII SA as follows:

- 1) Excellent initial stability after loading on bone of poor quality
- 2) Possibility of early or immediate loading
- 3) Short time required for the procedure
- 4) Easy adjustment of cutting ability and depth
- 5) Easy correction of the installation direction

Therefore, the authors investigated the clinical benefits of this brand-new implant by evaluating the subjective satisfaction of clinicians and the short-term clinical outcome after the installation of TSIII SA implants in 41 medical centers that are actively involved with dental implantation nationwide, and we are reporting the results.

Materials & Methods

A total of 41 dental clinics took part in this study. 51% of the centers used the GS system from Osstem implant and 49% used implants from different manufacturers. In total, 522 TSIII implants were installed for three months from 31 August to November 2009. Maxillary and mandibular posterior regions were the most frequently implanted areas, and prosthodontic treatments were carried out 3 to 4 months after the installation regardless of the installation region. 262 cases were completed with prosthodontic treatment upon completion of the study with the recovery of the questionnaires.

The questionnaire consisted of the following questions. Users from 41 centers completed the questionnaire based on their combined experience of 522 implantations.

- (1) Bone quality Bone quality was classified into hard, normal, or soft bone according to the clinician's personal evaluation.
- (2) How easy was it to secure the initial fixation?
- (3) How effective was the cutting ability of the implant into the bone tissue?
- (4) Clinician's compliance with the implantation procedure
- (5) Failure of the implantation in the early stage and the bone's response
- (6) Overall satisfaction with TSIII and other opinions

Results

In this study, the TSIII SA implant was used in settings with various degrees of bone quality, and the success rate of implantation in the early stage was as high as 99.6%. The TSIII SA implant also showed excellent bone response, and the treatment period - from installation to prosthetic loading - was shortened by an average of 3-4 months. No significant difference was observed in initial fixing force and self-tapping ability, which indicates that the TSIII SA implants are no different to tapered implants in terms of their functionality.

The compliance evaluation revealed that most of the clinicians do not follow the procedure as specified by the manufacturers. Notably, a relatively high percentage of clinicians did not use a cortical drill during normal bone implantation due to the change in the design of the TSIII system to a single thread type. However, the use of a cortical drill is recommended because torque installation can deviate from the proper range in many cases. When a tapered implant is installed without using countersinking or cortical drilling in a cortical bone, the chances of excess torque occurring are higher, which can result in alveolar bone absorption during the healing process.

It is notable that 50% of the clinicians answered that there is no difference between the TSIII SA and previously preferred products in the overall satisfaction survey, while 25% of clinicians responded that they would wait and see before actually purchasing it for clinical application. Though the TSIII SA implant showed better results in the stimulation of initial bone conduction and bone response, most clinicians stated that they do not perceive any significant difference between the TSIII SA and previous models in terms of the design; as such, a long-term clinical evaluation of its short history since its commercial release will be necessary.

Conclusions

1. A total of 522 implants were installed, 99.6% (n=520/522) of which were successful. Most of the clinicians evaluated that the TSIII SA implants exhibited excellent bone response.
2. About 50% of the clinicians answered that there was no significant difference between the TSIII SA and previously preferred products in terms of self-tapping ability and initial fixation.
3. The average treatment period was 3.9 months for the maxillar, and 3.4 months for the mandibular, which suggests that the TSIII SA implants can shorten the treatment period.
4. Overall satisfaction with the TSIII SA was rather high, but approximately 50% of the clinicians answered that there was no difference in terms of the satisfaction they felt with the TSIII SA compared to previously preferred products.