Our Research is Your Success...

Soft and Hard Tissue Changes around Tissue-Oriented Tulip-Design Implant Abutments: A 1-Year Randomized Prospective Clinical Trial”

Zvi Gutmacher, DMD; Guy Levi, DMD; Israel Blumenfeld, DMD, DSc; Eli E. Machtei, DMD
Background

The advantages of platform switching using narrower abutments remain controversial. Many researchers suggest that platform switching can yield enhanced clinical results, while others remain skeptical. We hypothesize that the effectiveness of platform switching might be associated with the degree of reduction in size of the abutment.

Purpose

To radiographically and clinically examine a new abutment design created to move the implant-abutment interface farther medially.

Materials and Methods

This was a prospective, randomized controlled clinical trial that included 27 patients (41 MIS LANCE PLUS® implants; MIS Implant Technologies, Israel). The patients’ age ranged from 39 to 75 years. At the second stage of the surgery, the implants were randomly assigned to either the new platform switch Tulip abutment (TA) design or to the standard platform abutment (SA). Implant probing depth (IPD) and bleeding on probing (BOP) were recorded at baseline and after 12 months. Standardized periapical radiographs were taken (at baseline and at 12 months) and the marginal bone height measured.

Results

All implants were successfully integrated. The mean IPD at 1 year post-op was 2.91 mm for the SA group and 2.69 mm for the TA group (p > .05). Similarly, the BOP at 1 year was almost identical in both groups. The mean values of bone resorption at baseline were 0.98 ± 0.37 mm and 0.69 ± 0.20 for the TA and SA groups, respectively (p > .05). Bone loss (baseline to 12 months) was significantly greater in the SA group compared with the TA group.

Conclusions

Use of the new TA, with its significantly downsized diameter, resulted in reduced bone loss at 1 year. Further research will be required to assess the long-term effect of this abutment on peri-implant health.

Summary:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Standard Abutment, Mean±SE</th>
<th>Tulip Abutment, Mean±SE</th>
<th>p Value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone height at baseline (all sites)</td>
<td>0.69±0.20</td>
<td>0.98±0.37</td>
<td>.3379</td>
</tr>
<tr>
<td>Changes in bone height at 1 year (all sites)</td>
<td>0.94±0.36</td>
<td>0.14±0.12</td>
<td>.0025</td>
</tr>
<tr>
<td>Changes in bone height at 1 year (mesial sites)</td>
<td>0.96±0.22</td>
<td>0.13±0.11</td>
<td>.0132</td>
</tr>
<tr>
<td>Changes in bone height at 1 year (distal sites)</td>
<td>1.02±0.25</td>
<td>0.15±0.1</td>
<td>.0033</td>
</tr>
</tbody>
</table>

*Student’s t-test for unpaired observations.