

Early Healing Events on Chemically Modified SLA Implants in Man

Author

Bosshardt, DD, Lang, NP, Salvi, GE, Huynh-Ba, G, Ivanovski, Saso, N, Donos

Published

2010

Conference Title

Journal of Dental Research 2010, 85 (Spec. Iss. B)

Downloaded from

<http://hdl.handle.net/10072/41989>

Link to published version

<https://iadr.abstractarchives.com/meeting/2010barce>

Griffith Research Online

<https://research-repository.griffith.edu.au>

Early Healing Events on Chemically Modified SLA Implants in Man

D.D. BOSSHARDT¹, N.P. LANG², G.E. SALVI¹, G. HUYNH-BA¹, S. IVANOVSKI³, and N. DONOS⁴,
¹University of Bern, Bern, Switzerland, ²The University of Hong Kong, Hong Kong, Hong Kong,
³Griffith University, Southport, Australia, ⁴Eastman Dental Institute for Oral Health Care Sciences,
London, United Kingdom

Objective: To evaluate morphologically and morphometrically the sequential healing and osseointegration events at moderately rough implant surfaces with and without chemical modification. **Material and methods:** Cylindrical titanium devices (n=49), 4mm long and 2.8mm wide, with either chemically modified (SLActive) or sandblasted and acid-etched (SLA) surface configurations were surgically installed in the retromolar area of 28 human volunteers. After 7, 14, 28 and 42 days of submerged healing, the devices were retrieved with a trephine bur. Histologic ground sections were prepared and histomorphometrically analyzed. Linear measurements determined fractions of old bone (OBIC), new bone (NBIC), soft tissue (ST), and bone debris (BD) in contact with the device surfaces. **Results:** Healing was uneventful at all installation sites. 61% of all devices were suitable for morphometric analyses. All implant surfaces were partially coated with bone debris and new bone formation was observed as early as 7 days after installation. There was a gradual increase in NBIC, whereas OBIC, ST and BD progressively decreased over time. NBIC after 2 and 4 weeks was higher on SLActive than on SLA surfaces, albeit statistically not significant. The BD:ST ratio changed significantly from 7 to 42 days (from 50:50 to 10:90 for SLActive; from 38:62 to 10:90 for SLA) (Fisher's Exact Test, p<0.01). **Conclusion:** Both SLActive and SLA devices became progressively osseointegrated, while old bone on the device surface was gradually resorbed. The decrease in BD:ST ratio suggests that bone debris, created during implant installation and adhering to moderately rough surfaces, significantly contributed to the initiation of bone deposition.

Supported by a grant (371/04) from the ITI Foundation and the Clinical Research Foundation (CRF) (CRF 022/07)