

## SONIC DEVICE OR CONVENTIONAL DRILLS FOR IMPLANTS SITES PREPARATION: A BONE HEALING HISTOMORPHOMETRIC RANDOMIZED CONTROLLED CLINICAL TRIAL

**Baldi N.<sup>[1]</sup>, Piattelli A.<sup>[3]</sup>, Iezzi G.<sup>[3]</sup>, Sakuma S.<sup>[2]</sup>, Ferri M.<sup>[4]</sup>, Botticelli D.<sup>[2]</sup>**

[1]ARDEC Academy – Florence – Italy, [2]ARDEC Academy – Rimini – Italy, [3]University of Chieti – Chieti – Italy, [4]Corporación Universitaria Rafael Nunez – Cartagenas de Indias – Colombia

A recent systematic review evaluated the influence on bone-implant interface of recipient sites preparation performed with conventional drills, osteotomes and piezoelectric devices (Tretto et al. 2018). No differences were found. The use of piezoelectric or sonic devices has become widespread during the last years due to the precision, the reduced risk of damaging soft tissues and the clear view of the surgical sites (Vercellotti et al 2003; Viganó et al 2015). Given that, the evidences that may support the use of sonic devices seem not to be sufficient yet (Ruga et al. 2017).

To evaluate histologically the early healing at implants installed in sites prepared with either a sonic device or conventional drills.

Sixteen patients were recruited. Two mini-implants, were inserted in the posterior maxilla in sites prepared either with a sonic device or conventional drills. Biopsies containing the mini-implants were retrieved after 2 and 6 weeks in eight patients for each group. Histometric (BIC, Bone-to-implant contact) and histomorphometric analyses were performed.

Histological slides were available from 7 patients for both groups.

After 2 weeks of healing, new bone in contact with the implant (BIC) was  $5.5 \pm 7.3\%$  and  $3.8 \pm 10.0\%$  at the sonic and drill groups, respectively.

From histomorphometric analysis new bone and old bone were  $3.5 \pm 3.9\%$ ,  $43.1 \pm 9.1\%$  in the sonic group and  $6.3 \pm 13.0\%$ ,  $37.9 \pm 12.2\%$  in the drill group.

After 6 weeks of healing, new bone in contact with the implant (BIC) was  $46.9 \pm 15.5\%$  at the sonic group, and  $46.4 \pm 14.9\%$  at the drill group.

From histomorphometric analysis new bone and old bone were  $48.1 \pm 8.6\%$ ,  $20.1 \pm 5.7\%$ , in the sonic group, and  $47.5 \pm 4.4\%$ ,  $20.0 \pm 4.3\%$  in the drill group.

None of the differences was statically significant.

Similar amount of newly formed bone were observed at implant sites prepared either with a sonic device or drills.

The present outcome suggested that sonic devices may be used in clinical practice for implant site preparation.