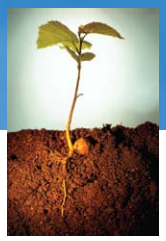

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Split bone block technique: 4-month results of a randomised clinical trial comparing clinical and radiographic outcomes between autogenous and xenogeneic cortical plates

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ABSTRACT

In order to treat 3D combined bone defects for an ideal implant placement, a new approach has been recently proposed, with the aim to create a space using autogenous cortical plates (ACPs), which are filled out with particulate autogenous bone so to achieve sufficient bone volume augmentation. Although autogenous bone is considered the gold standard, the use of an alternative to ACP harvesting, showing comparable biological behaviour, could make this technique easier and less painful for patients.

As porcine-derived grafts have shown good bone regeneration properties when used as particulate granules, but their use as cortical plates to provide a frame for 3D bone regeneration procedures has not yet been described, this study aimed to evaluate the outcome of 3D bone regeneration procedures using thin porcine xenogeneic cortical plates (XCPs) in combination with autogenous bone chips compared with thin ACPs and autogenous bone chips. Xenogeneic graft consisted of a thin porcine cortical plate (OsteoBiol® *Lamina*, Tecnoss®, Giaveno, Italy). A total of 19 patients (12 women and 7 men, aged between 23 and 73 years) with insufficient bone height (≤ 6 mm), width (≤ 3 mm) or both in the maxilla or mandible, were randomly allocated to two different groups regarding surgical procedure: autogenous cortical plates (ACP group) and xenogeneic cortical plates (XCP group).

From a clinical point of view, operative time was significantly lower in the XCP group (25.45±3.88 minutes) than in the ACP group (44.10±3.60 minutes). The XCP group also showed less pain, although the difference was not statistically significant (P >0.05). The graft resorption rate showed no statistically significant difference in the ACP and XCP groups (2.03±1.58% and 3.49±2.38% respectively). With reference to x-ray evaluation, the difference between bone resorption in both groups was not statistically significant.

CONCLUSIONS

Within the limitations of this study (small sample size and imbalances in the surgical site distribution), the results show that both ACP and XCP obtained similar outcomes in terms of bone volume gain and graft resorption after 4 months. Anyway, the XCP group recorded lower pain levels and required significantly less operative time compared to the ACP group.

The Authors concluded that further studies should be conducted to address the possible advantages of XCP.

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