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Wide diameter immediate post-extractive implants vs delayed placement of normal-diameter implants in preserved sockets in the molar region: 1-year post-loading outcome of a randomised controlled trial

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ABSTRACT

In case of tooth loss, in order to minimise the risk of implant failures and complications, delayed implant placement after complete socket healing is generally preferred, usually associated with different ridge preservation procedures, ranging from soft tissue grafts to autogenous or bone substitutes grafts. As it would be useful to know if it is possible to have similar or better clinical outcomes by placing immediately wide diameters implants in post-extractive sites, the aim of this single-centre randomised controlled trial (RCT) was to compare the effectiveness of 6.0 to 8.0 mm-wide diameter implants placed immediately after tooth extraction, with conventional diameter implants placed in preserved sockets after 4 months of healing in molar sites. In the delayed group, the sockets were loosely packed with a mixture of cancellous and cortical porcine-derived bone granules with a granulometry of 250 to 1000 μm (OsteoBiol® *Gen-Os*® Tecnoss®, Giaveno, Italy). In order to cover the socket, a resorbable collagen membrane derived from equine pericardium (OsteoBiol® *Evolution*, Tecnoss®) was trimmed and adapted on it. Included in the outcomes measures there were the peri-implant marginal bone level changes. Marginal bone levels at implant insertion (after bone grafting) were 0.04 mm for immediate implants and 0.11 mm for the delayed ones, and this was statistically significantly different. One year after loading, the loss was on average 1.06 mm in the immediate group and 0.63 in the delayed group, with a statistically significant difference. From an aesthetic point of view, the total PES score was statistically significantly better at delayed implants both at 4 months (9.65 ± 1.62 in the immediate group and 10.44 ± 1.47 in the delayed group) and at 1 year (9.71 ± 2.71 in the immediate group and 10.86 ± 1.37 in the delayed group). With reference to failures, 5 implants out of 47 failed in the immediate group (10.6%) and 2 out 44 in the delayed one (4,6%), with a difference not statistically significant. About complications, in the immediate group 10 patients reported complications vs 4 patients in the delayed group (difference not statistically significant). To be noted that 7 patients (14%) in the immediate group developed vestibular bone dehiscence from 3 months after implant placement to 9 months postloading.

CONCLUSIONS

The present study supports the notion that post-extractive immediately loaded implants could be at a higher risk of failure than delayed implants, as confirmed by other RCTs. The results show ridge preservation and delayed conventional implants placement yielded better aesthetic outcomes compared to immediate placement of larger diameter implants. At 1 year after loading, immediate implants lost 0.43 mm more bone than delayed implants and this difference was statistically significant.

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ORIGINAL ARTICLE
European Journal of Oral Implantology
2017; 10(3): 263-278

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