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Immediate, early (3 weeks) and conventional loading (4 months) of single implants: Preliminary data at 1 year after loading from a pragmatic multicenter randomised controlled trial

Key words conventional loading, early loading, immediate loading, peri-implant marginal bone levels, single dental implant

Purpose: To compare the clinical outcome of single implants which underwent immediate non-occlusal loading with implants subjected to early non-occlusal loading at 3 weeks, and implants conventionally loaded at 4 months.

Materials and methods: One hundred and five patients in five private practices requiring a single implant-supported crown were randomised to immediate loading (35 patients), early loading (35 patients) and conventional loading (35 patients) groups. To be immediately or early loaded, implants had to be inserted with a torque superior to 45 Ncm. Immediately and early loaded implants received non-occluding temporary crowns, whereas conventionally loaded implants were directly restored with definitive crowns. Temporary crowns were replaced by definitive ones after 4 months. Outcome measures were crown and implant failures, complications and peri-implant marginal bone level changes recorded by a blinded assessor.

Results: Two patients dropped out from the immediate loading group up to 1-year post-loading. Two implants failed, one in the immediately loaded and one in the early loaded group ($P = 0.601$). One immediately loaded implant and two early loaded implants were affected by one complication each ($P = 0.162$). Mean peri-implant marginal bone loss after 1 year was -0.120 ± 0.230 mm (95% CI $-0.35, 0.10$) for immediate, -0.390 ± 0.840 mm (95% CI $-1.23, 0.45$) for early and -0.201 ± 0.306 mm (95% CI $-0.51; 0.11$) for conventionally loaded implants. There were no statistically significant differences for any of the outcome measures between the three loading strategies up to 1-year post-loading.

Conclusions: No major clinical differences were observed with regard to implant survival, complications and marginal bone level changes when loading single implants immediately, early or conventionally.

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