Pulsed electromagnetic fields’ effects on swelling and pain after implant surgery: a double-blind, randomised study

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Purpose
The aim of this split-mouth, double-blind, randomised study is to evaluate if pulsed electromagnetic fields treatment can improve swelling and pain management after a full-arch immediate loading implant surgery.

Materials and methods
11 patients were selected for the study. Each patient received four implants in the upper or lower jaw using distal tilted implants and underwent a full-arch immediate loading rehabilitation (Fig. 1.; Fig. 2.).

After surgery, two pulsed electromagnetic field (PEMF) devices were applied on the right and the left cheek of each patient (Fig. 3.). Randomly, one PEMF device was switched on (test side), applying the other one as a placebo (control side).

48 hours after surgery, clinicians estimated the postoperative swelling through photographic documentation, comparing the condition prior and after surgery, while pain was assessed using a verbal rating scale (Fig. 4.; Fig. 5.).

Patients’ degree of comfort in relation to PEMF devices was analysed by questionnaires using a numerical rating scale.

Results
No significant differences were observed between the test side and the control one regarding swelling and pain ($p>0.05$) (Fig. 5.). Most of patients did not present swelling or pain 48 hours after surgery, without distinction between whether the PEMF device was activated and not. Variable outcomes emerged from the comfort evaluation.

Conclusions
Within the limits of this study, PEMF treatment does not reduce postoperative swelling and pain after immediate loading implant surgery.

References