

Transcutaneous periorbital electrical stimulation in the treatment of dry eye.

Pedrotti E¹, Bosello F¹, Fasolo A^{1,2}, Frigo AC³, Marchesoni I¹, Ruggeri A⁴, Marchini G¹.

Author information

Abstract

PURPOSE: To evaluate efficacy and safety of transcutaneous application of electrical current on symptoms and clinical signs of dry eye (DE).

METHODS: 27 patients with DE underwent transcutaneous electrostimulation with electrodes placed onto the periorbital region of both eyes and manual stimulation with a hand-piece conductor moved by the operator. Each patient underwent 12 sessions of 22 min spread over 2 months, two sessions per week in the first month and one session per week in the second month. Ocular Surface Disease Index (OSDI) questionnaire, tear break-up time (TBUT), fluorescein staining of the cornea, Schirmer I test and adverse events were evaluated at baseline, at end of treatment and at 6 and 12 months.

RESULTS: OSDI improved from 43.0±19.2 at baseline to 25.3±22.1 at end of treatment (mean±SD, p=0.001). These effects were substantially maintained at 6-month and 12-month follow-up evaluations. Improvement of the values of TBUT was recorded for the right eye at the end of treatment (p=0.003) and found in the left eye after 12 months (p=0.02). The Oxford scores changed in both eyes at the end of treatment and at the 6-month evaluation (p<0.001), and in the right eye at the 12-month evaluation (p=0.035). Schirmer I improved significantly at the end of treatment in the left eye (p=0.001) and in both eyes at the 12-month evaluation (p=0.004 and p=0.039 for the left and right eye, respectively). A significant reduction of the use of tear substitutes was found at the end of treatment (p=0.003), and was maintained during the follow-up (p<0.001). No complications occurred and patients found the treatment satisfying.

CONCLUSIONS: Transcutaneous electrical stimulation was shown to improve DE, both subjectively and objectively, without any adverse effects and has the potential to enlarge the armamentarium for treating DE.

Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to <http://www.bmj.com/company/products-services/rights-and-licensing/>.

KEYWORDS: Lacrimal gland; Ocular surface