

The outcomes of thermal symmetry after orofacial pain acupuncture treatment

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Abstract

Orofacial pain is a common health condition, which affects considerably the life quality of patients. Some of these patients are sensitive to treatment drugs and have to look for alternative treatments. Acupuncture seems to be an adequate treatment in this situation, however like most treatments its evaluation relies in the subjectivity of the patient claims. A methodology using infrared imaging in frontal and lateral views of the face, before and after treatments was performed. In the obtained images regions of interest were drawn and measured and the value of thermal symmetry used to quantitatively evaluate and prove the treatment effect.

1. Introduction

Orofacial pain has been defined as pain localized to the region above the neck, in front of the ears and below the orbitomeatal line, as well as pain within the oral cavity, which can include pain of dental origin and temporomandibular disorders [1]. However, some orofacial pain conditions may involve areas outside this region. This kind of pain has physiological manifestations, namely at the microvascular and autonomic nervous systems, which affect the thermal imbalance of the skin, infrared imaging can be used to assess this changes [2] and the thermal symmetry value calculated to assess its stage and treatments outcome [3]. Acupuncture has been suggested as treatment to patients that present sensitivity to the use of drugs [4].

2. Methodology

Seven patients of the orofacial pain service at the Centro Hospital do Porto were selected and screened with infrared imaging, following the international capture guidelines [5-7]. The views taken were the frontal and lateral face. Regions of interest were drawn using the facial location of acupuncture points (Fig. 1) and the value of thermal symmetry was calculated [3].

3. Results

Examples of images taken are presented in Fig. 2 and example of one patient evaluation charts based in regions of interest thermal symmetry values are shown in Fig. 3, where can be easily seen that after treatments this value decreased correlating the subjective claims of the patients, that the pain was also decreasing.

4. Conclusions

The developed methodology using infrared imaging to evaluated alternative treatments to drug sensitive orofacial pain patients was objective and repeatable, being an important addition to physicians that engage in this practice to monitor the treatment progress and demonstrate it to the patients, documenting their health status objectively.

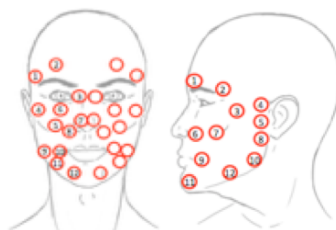


Fig. 1. Regions of interest based in the facial acupuncture points, frontal (left), lateral (right).

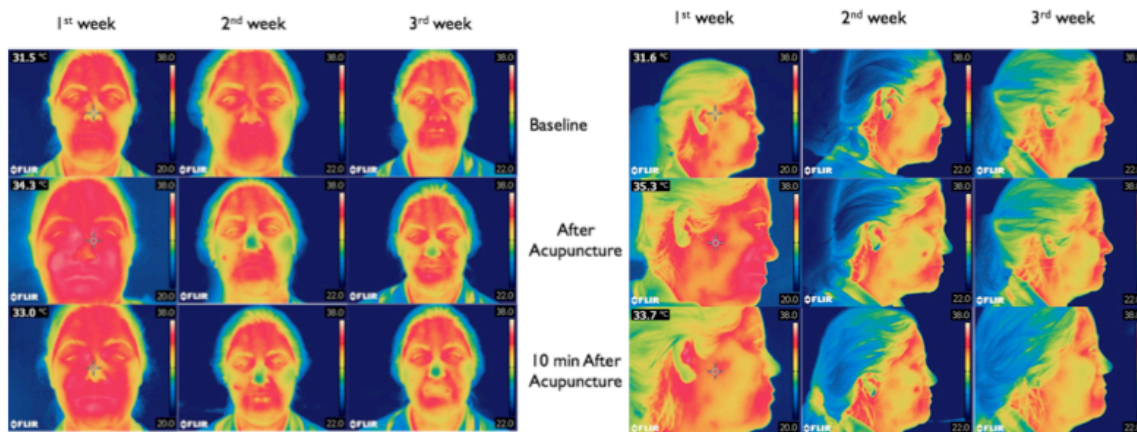


Fig. 2. - Examples of facial infrared images taken, frontal (left) and lateral (right), during three treatments.

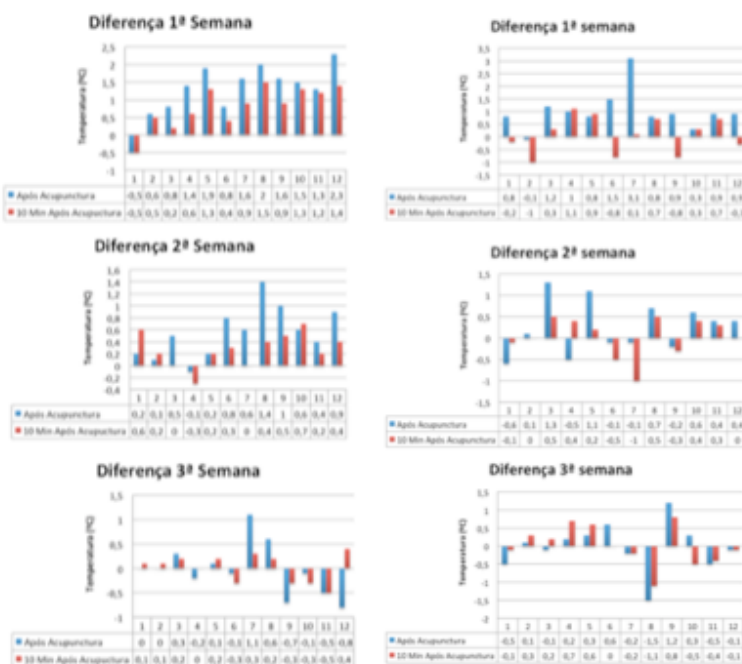


Fig. 3. - Examples of thermal assessment of views, frontal (left) and lateral (right), during three treatments.

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