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CLINICAL CASE REPORT

A Case Report on the Effect of Sham Acupuncture

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Abstract

When nausea, an extremely unpleasant symptom, is experienced during dental treatment, it generates disorders and obstacles for both the patient and the professional, compromising the good quality of dental care. Clinical studies have confirmed the antiemetic action of acupuncture and shown its use for the treatment of nausea and vomiting. In the scientific literature there are several recent studies that address the placebo effect of acupuncture. The aim of this manuscript is to present a case report of a 46-year-old Caucasian male patient, who had severe symptoms of nausea while undergoing dental care. Treatment with sham acupuncture (acupuncture simulation) obtained a positive result of nausea prevention. We will discuss three possible hypotheses concerning this result: (1) there was action of Deqi; (2) high expectations of the patient; and (3) association with specific learned response. The patient in this case report received nonpenetrating sham acupuncture at acupoint Neiguan (PC6), which resulted in the complete remission of nausea during an intra-oral impression-taking procedure, but it is unclear whether the placebo effect was triggered by the action of Deqi, the high expectations of the patient, an association with a learned response, or by the interaction of all these factors.

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1. Introduction

When nausea, an extremely unpleasant symptom, is experienced during dental treatment, it can hinder or even prevent the necessary dental procedures from being performed. This especially applies when intra-oral impressions are being taken, as this is capable of inducing vomiting. This clinical situation generates disorders and obstacles for both the patient and the professional, jeopardizing the quality of dental care.

The trigger factors for nausea may be of local, systemic, anatomical, psychological, and iatrogenic origin [1]. Thus, the etiology of nausea is considered to be multifactorial.

According to Western medicine, nausea is the conscious recognition of excitation of a brain area that is associated with the vomiting (emesis) center [2]. Nausea is defined as a “stimulated, protective, reflex response to prevent material from entering the mouth or oropharynx. Gagging stimuli can be physical, auditory, visual, olfactory, or psychologically mediated and the muscular contractions caused may result in vomiting” [3]. According to traditional Chinese medicine, nausea and vomiting are explained as an upward Qi (energy) of the stomach in rebellion and the PC6 acupuncture point has the effect of redirecting the Qi counterflow [4].

The antiemetic action of acupuncture has been confirmed in clinical studies that have shown its use in the treatment of nausea and vomiting in postoperative chemotherapy and pregnancy [5–7].

Acupuncture is defined as the insertion of needles into specific body parts (acupoints) for prevention, therapy, or maintenance of health [8]. The acupuncture theory is based on the existence of patterns of energy flow (Qi) through the body that are essential for health; and imbalances in the flow of this energy are responsible for diseases [5].

A clinical study has shown that acupuncture with actual penetration into the skin was more effective in treating pain than a similar treatment using a placebo needle at the same point [9]. This suggests that the actual penetration of the needle is an important component of acupuncture treatment [10].

In the scientific literature there are several recent studies that address the placebo effect in acupuncture [11–13]. Placebo effects are the responses obtained in clinical trials, when some substances or procedures that are designed to serve only as control conditions in the study, produce some effect on the results. These indirect effects produced by biologically inert substances or by inactive procedures are considered within the term “placebo effect” [14].

The aim of this manuscript is to present a case report of a patient with the symptom of nausea during dental care, who was treated with sham acupuncture (acupuncture simulation) and obtained a positive result.

2. Case Report

This article describes the case of a patient, a 46-year-old Caucasian man, who had a severe symptom of nausea while undergoing dental care. This patient participated in a larger, double blind clinical study with 33 volunteers,

divided into two groups (test and control), to evaluate the control of nausea by acupuncture. The study was conducted at the Piracicaba Dental School, State University of Campinas (Unicamp), in Piracicaba, São Paulo, Brazil.

The inclusion criteria were as follows: volunteer patients, adults of both sexes, aged 18–85 years, who reported previous unpleasant nausea during dental procedures, hindering or preventing the dental treatment from being carried out properly. The exclusion criteria were: pregnant patients and patients who had been taking antiemetic drugs or medications that could produce nausea. The test group ($n = 17$) was treated with real acupuncture at acupoint Neiguan (PC6), using an acupuncture needle size 30 mm \times 0.25 mm, (Qizhou Brand, Wujiang City Shenli Medical & Health Material Co. Ltd, Wujiang, Suzhou, Jiangsu, China). The control group ($n = 16$) were treated with sham nonpenetrating acupuncture (noninvasive) at the same acupoint, using the Streitberger sham needle (Asia-Med brand, asia-med GmbH & Co. KG, Pullach, Germany), measuring 0.30 mm \times 30 mm. This needle is retractable and has a blunt tip, therefore, it does not penetrate the skin; however, when it touches the skin, the patient feels a stinging sensation [15]. A circular intermediate device (ring), 1 cm in diameter, made of resin, was used to fix the sham needle in the acupuncture point and this device was also used in the real acupuncture group. This device was attached to the skin by means of hypoallergenic microporous adhesive tape, 0.12 cm wide, (Nexcare; 3M, Sumaré, Sao Paulo, Brazil). When the sham needle is inserted through the micropore it touches the skin but does not penetrate. In both groups, the needles were inserted by the same experienced acupuncturist. To evaluate the degree of nausea, two maxillary impressions were taken (the first was taken before acupuncture and the second after acupuncture) and in both groups, nausea was assessed by the researcher. Neither the researcher nor the patient knew to which group the patient belonged. To ensure this, once the needles were inserted the patient was covered with a disposable blue sheet and remained covered until they were discharged. Nausea was evaluated by the researcher after the first impression was taken (without acupuncture) and after the second impression (with acupuncture). Nausea was evaluated using the gagging severity index (GSI) and gagging prevention index (GPI), indexes proposed in the study by Fiske and Dickinson [16]. The GSI was used in the first impression (without acupuncture) to assess the degree of nausea severity, which ranged from I (mild nausea and controlled by the patient) to V (very severe nausea, impossible to perform the treatment). The GPI was used in the second impression (after real or sham acupuncture) to evaluate the degree of nausea prevention, i.e., the effectiveness of the treatment. This scale ranged from I (reflex controlled, successful treatment) to V (severe nausea reflex, being unable to perform any treatment). The volunteers' expectation of nausea reduction through acupuncture was also evaluated using a 5-point Likert scale with the following options: no, I do not think so, maybe, I think so, yes. For more details, see the 2014 article by Zotelli et al [17].

In this study, acupuncture with real needle insertion was shown to be more effective than sham acupuncture in controlling nausea. However, one particular positive

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