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Evaluation of acupressure effect on reducing the need for dental injection in fixed prosthodontics

Abstract

Aim: This study aimed to evaluate the effect of the acupressure in reducing the dental pain that may omit the need for dental injection.

Materials and Methods: A total of 10 patients who were treated by preparing vital abutments to provide them with fixed prosthesis after the metal try-in stage. Ethical form was approved from the department of substitutive dental science and the ethics committee of research. Consent form also was signed by the participants before proceeding on the procedure. Illustrative videos and photos were provided to the patients to get an idea about the acupressure procedure. Pain scale was determined before and after pressing on the related points. The point was determined according to the tooth being treated using dental ball burnisher, and one piece of pepper was fixed on that point with a tape and started stimulation for at least 30 seconds then tooth preparation was initiated. Statistical data analysis was conducted via SPSS version 23.0 (IBM, USA).

Results: Using acupressure instead of dental injection during metal try-in stage for dental fixed prosthesis was significantly effective ($P \leq 0.011$). There were more than 60% patients who believed in this new technique and none of them have any knowledge about the acupressure treatment. **Conclusion**: Acupressure could be a way to reduce dental pain, and thus reduce the need for dental injection before metal try-in in Fixed Prosthodontics.

Clinical significance: Acupressure can achieve a significant and clinically meaningful reduction of anxiety in dental patients.

Keywords: acupressure, dental pain, dental injection, fixed prosthodontics, dental patients, anxiety, analgesia, psychological and complementary therapies

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Introduction

Dental anxiety is a common problem that occurs for patients in different ages.[1] One of the main causes of dental anxiety is the injection of anesthesia during dental procedure.[2] Usually, patient needs injections during metal try-in on vital abutments to do a symptom-free procedure comfortably. Recently, the trend to reduce anxiety and dental pain is to shift to other techniques away from pharmacological techniques, including psychological and complementary therapies. One of the complementary therapies is the acupuncture.[3]

Acupuncture is an effective method in reducing dental pain. And is a well-known technique to reduce dental anxiety.[4] This technique is used mainly as analgesia.[5] On the other hand, the injection may not work efficiently, as in case of irreversible pulpitis, using acupuncture in such cases was found to increase the success of inferior alveolar nerve block.[6] A study conducted in 2014 found that acupuncture was effective in reducing the nausea in patients before making the maxillary impression.[7] Another study was found that acupuncture reduces pain during injection of local anesthetic in children.[8]

Acupuncture technique involves the insertion of fine disposable needles with certain length and certain angle onto the surface of the body in certain areas. These areas could be activated using electrical impulses (electroacupuncture), heat, laser light, and pressure.[9]

Acupuncture may cause some adverse effects if not performed by well-trained person.[4] Moreover, using needle in acupuncture application still causes phobia during dental treatment, [5] and such needles will cost more money.[10]

One of the concerns in applying acupuncture is the need for experienced and licensed acupuncturist, other than inserting some needles in certain studied position of the body. The mechanism of how acupuncture works is still not clear. Some proposed that the effect is through certain chemicals in the body as endorphins, neurotransmitters [serotonin and noradrenaline] and histamine. The 'gate control' theory of pain could be applied here as the acupuncture closes the gates and so preventing nerve impulses transmission that may cause pain. In order to avoid using the needle in acupuncture; acupressure technique was developed, using the fingers or hard pointed ball-shaped head instrument to stimulate certain related points.[3]

Materials and methods

In-vivo clinical study was conducted on patients of fixed Prosthodontics clinic of both gender during metal try-in procedure, from April 2019 to May 2019, after getting the approval from the Ethics Committee. Formal consent was signed by the patient before starting the procedure. The inclusion criteria were: volunteer patients, of both sexes, aged 18–65 years initially, 10 patients joined in the study. A questionnaire was used to collect information about the patients including personal and demographic data, if the patient had previous knowledge about acupressure, whether they were exposed to such treatment in the past, whether they were under analgesics, and their expectations.

The patients were allowed to watch video and photos that demonstrate the acupressure point. The procedure pain severity was first assessed using the visual scale assessment,[11] then patient

expectations was recorded to evaluate the effect of patient expectation on the results. The point was determined according to the tooth being treated using dental ball burnisher, and one piece of pepper was fixed on that point with a tape and started stimulation for at least 30 seconds then tooth preparation was initiated.[12]

Data were collected and analyzed using Statistical Package for Social Science (SPSS version 23, IBM USA). Demographic data were presented in tabular form. Mann Whitney U-test was used to check the relationship between the variables, before and after treatment pain intensity was analyzed using Wilcoxon signed ranked test. P-value less than 0.05 were considered as statistically significant.

Results

Total 10 patients were recruited for this study. Two of them refused to get treated by this technique; rest 8 patient's data were included in the main analysis. Out of which 7 patients were female and only one was male with the age mean range between 50 to 59 years. Ninety percent were non-Saudi. Patient was asked if they have any past knowledge or previous exposure of this kind of technique or treatment, all of them do not have any idea about this kind of treatment. More than 60% patients believed that pain will be reduced after getting acupressure and there will be no need for dental injection as shown in Table 1. No patients used analgesics before arriving for treatment. There was insignificant relation found between those who believed that pain will reduce after acupressure and patients who felt relief in pain. Mean pain intensity (physically noted) before treatment was 4.75 (range 3 to 5) and after treatment it was 2.13 (range 1 to 3) according to the analogue scale of pain. There was significant reduction noted in pain after getting treated with acupressure technique (p=0.011) Figure 1.

Table 1 Pain will be reduced after getting acupressure.

	n	%
Age:		
18-28	1	12.5
29-39	3	37.5
50-59	4	50
Gender		
Male	1	12
Female	7	88
Nationality		
Saudi	1	12
Non-Saudi	7	88
Previous Knowledge about acupressure		
Yes	8	100
No	0	0
Expose such Treatment in Past		
Yes	8	100
No	0	0
Take analgesics in last 6 hours		
Yes	8	100
No	0	0
Expectation that pain will reduce after this technique		
Yes	5	63
No	3	37

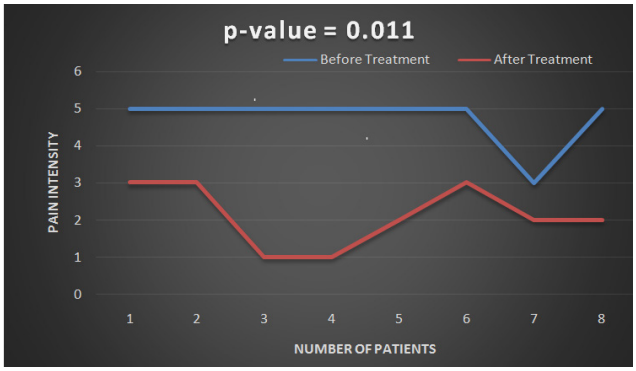

Figure 1 Difference between pre and post acupressure technique.

Discussion

Alternative medicine is used across the world for the holistic management of Dental pain including acupressure and acupuncture. Acupuncture involves the insertion of specialized needles into trigger points (acupuncture points) that are situated along channels called "meridians" that run throughout the body.[13] Acupressure follows the same principles as acupuncture, but it involves stimulation of the points with gentle finger pressure instead of fine needles.[14]

In the present study, there was a statistically significant difference between patients who were treated with acupressure before dental injections and those who were not. It is claimed that acupressure not only treats the energy fields and body but also the mind, emotions, and spirit. Some even believe that the therapist transmits their vital energy (external qi) to the patient. Not all practitioners believe that this is possible or even that meridians exist. Instead, they attribute the results of acupressure technique to other factors, such as reduced muscle tension, improved blood circulation, and the stimulation of endorphins.[15,16] The release of Endorphins (endogenous opioids) as known play an important role in increasing the pain threshold.[17,18] Moreover, Psychologically, endorphin release is experienced as a mild opiate 'high', a corresponding feeling of well-being, reflecting the role that endorphins play as part of the pain control system.[19]

Conclusion

Acupressure could be a technical adjunct to reduce dental pain, and thus reduce the need for dental injection before abutments preparation in clinical fixed prosthodontics.

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Conflicts of interest

The authors declare that there is no conflict of interest.

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