DOI: 10.7860/JCDR/2020/42672.13416

Original Article

Dentistry Section

Evaluating Efficacy of P-6 vs. CV-24 Acupressure Points in Controlling Severity of Gag Reflex

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ABSTRACT

Introduction: Gagging compromises treatment, affects patient compliance and vexes the operator. Acupressure is one of the non-pharmacological modes which have been cited in literature as an effective method in controlling the severity of gag reflex.

Aim: The study aims at evaluation and comparison of the efficacy of using acupressure points CV-24 and P-6 in controlling the severity of gag reflex.

Materials and Methods: Thirty students who qualified inclusion criteria and scored 7 or above on the 'Predictive Gagging scale' which categorised them as severe gaggers were included in the study from October 2017 to March 2018. Customised bands were fabricated for application of acupressure. The gag reflex was triggered; pre and post application of acupressure and the scores were noted on the Dickinson and Fiske's Gag-Index. One point was tested in one subject during one phase. The study was carried out in 3 phases to avoid the overlapping effect of acupressure at any point. A sham point was included in the study to maintain objectivity and eliminate subject and operator bias. The points to be evaluated and compared were Point A (P-6), Point B (CV-24), Point C (placebo).

Results: It was observed that as ($p<0.05$) is the level of significance, CV-24 is more effective than P6 in controlling the gag reflex in adults within the set age group of 18-28 years of age.

Conclusion: Acupressure is an effective modality in controlling gag reflex and can be helpful adjuvant in addressing unfavourable gag incidences during routine dental practise. Acupressure at Point CV-24 is better in controlling the severity of gag-reflex.

Keywords: Conception vessel-24, Cun, Customised acupressure bands, Gag severity, Pericardium-6

INTRODUCTION

Gagging is a defensive response to any unwanted foreign material trying to enter the airway to prevent choking. Gagging commonly occurs during dental procedures. Prosthodontists successfully manage many patients with mild gagging using simple chairside techniques. For patients with severe gag reflex, clinicians' finger or instrument contacting the oral mucosa or even sight of dental instruments, blood might trigger a gag reflex. In some scenario, remembrance of a previous dental experience might also make the patient gag. Providing adequate dental care to such a group of patients is stressful for the clinician and the patient as well. An abnormal active gag reflex may upset the patient psychology, compromise the treatment quality, and vexes the dentist. Irrespective of frequency, when a severe gagger presents for treatment, it must be rendered at all costs. Conny DJ and Tedesco LA stated approaches for managing patients with severe gag reflex, and they categorised these techniques as clinical techniques, prosthodontic management, pharmacologic measures, and psychologic intervention [1].

Anticipation of the discomfort caused by gagging has caused many patients to ignore oral problems which can be sorted by simplest of the treatments, this leads to patients showing up only when the oral health has deteriorated to its worst and pain as the primary complaint [2]. At such stages, conservative and preventive treatments are of null value, end-stage option being exodontia. However, this just adds up to the problem as the missing teeth requires prosthetic attention and such patients usually do not tolerate removable prosthesis. Edentulousness resulting from this sequalae contributes to lower self-esteem and deteriorates quality of life [2].

The main mechanism of acupressure is based on stimulating the nerves by altering the processes and perception of pain transmitters. It facilitates releasing natural pain relievers such as endorphins and serotonin. Many techniques have been suggested to control the GR (Gag-Reflex) and acupuncture is one of those which seem to be overlooked. It is still an enigma how acupuncture is effective in controlling the gag reflex which ranges from the severity of mild nausea to a full-fledged vomiting episode [3]. It was earlier disputed that gag reflexes are controlled by vomiting centres but literature has shown that the brain does not house any specific centres for gagging, rather gag reflex is culminated from multiple sites present in the brain stem [3-5]. According to a research, the severity of gag reflex can be effectively controlled by acupuncture at point (conception vessel meridian 24) CV-24, while another research states that it can be effectively controlled by acupuncture at point (Pericardium meridian 6) P-6 [3,6]. The present study was aimed to compare the efficacy of acupressure at both P6 and CV-24 points and to establish the use of acupressure at these points as a definitive measure to control gagging reflex. A hypothesis that was preconceived was that none of the acupressure points are effective in controlling of gag reflex. The objectives of the study were to evaluate the efficacy of the prescribed acupressure points in controlling severity of gag reflex, if any and to compare them.

MATERIALS AND METHODS

The study design was a cross-over study as the same group received acupressure at different points during the study; it was carried out during a period of 6 months from October 2017-March 2018 after Receiving Approval from Institutional Ethics Committee (ref no- DMIMSU(DU)/IEC/2017-18/6767). Sample size was decided by using the method of difference of means, and the power of the study was 80%.

The observer of the study was blinded in all the phases. Thirty students fulfilling the inclusion and exclusion criteria's studying in scond year BDS Sharad Pawar Dental College and Hospital, Sawangi, Maharashtra, India, were included in the study.

Inclusion Criteria

Students between the age group of 18-28 years providing with written consent were considered for the study. The subjects

involved were the ones having no prior knowledge regarding role of acupressure in controlling severity of gag reflex. The predictive gagging survey was administered, and subjects scoring 7 or more than 7 were included in the study [7].

Exclusion Criteria

Subjects who were partially edentulous and had abnormalities of palate and lips. Subjects with systemic disorders and co-morbidities affecting psychomotor function. Patients who were aware of acupressure as a modality to control gag reflex were also excluded.

Material used in Study

Disposable Wooden spatula, Custom made Acupressure bands for chin and wrist, Disposable Sickness bags, Paper Towels.

Methodology

The two points which were to be checked for controlling of gag reflex were P-6 and CV-24. In order to eliminate bias a Placebo point was added to the study. The Placebo point served the purpose of blinding the subject and also the observant. It also helped in providing an unbiased statistical result. The study was conducted in 3 phases separated by period of 1 week. During each phase, all the subjects were randomly tested at the acupressure points in such a way that all three points were tested in all the subjects. The observer was unknown to the identity of points and for this purpose the points were named A (P-6), B (CV-24) and C (Placebo). The gag reflex was triggered using disposable wooden spatula at the gag trigger zone; once a gag response was elicited, the trigger was removed. The gag trigger zones triggered were posterior pharyngeal wall, Posterior Faucial Pillar, anterior faucial pillar, palatoglossal arch and Internal Cheek [2]. The patients were graded according to the gag severity index by Fiske J, Dickinson C [8]. The patient was rested for 1-2 minutes to recover from the gag experienced and the pressure was applied on the respective points for 5 minutes and gag response was again checked and scaled on the gag severity index. ([Table/Fig-1] shows the outline of the procedure).

Step 1-The subject is seated comfortably in a dental chair.			
Step 2-Gag Response is triggered in the subject.			
Step 3-The gag severity index is used to score the gag reflex. (Wait For 2 Minutes)			
Step 4-	Steady pressure is applied on CV-24 Point	Steady pressure is applied on P-6 Point	Steady pressure is applied on Placebo Point
Step 5-Gag response is triggered in the subject and scaled on the Dickinson and Fiske index			

[Table/Fig-1]: Sequence of steps involved in the study.

Location of Points [Table/Fig-2a-c]

A F-Cun (finger-cun) in a measurement relative to the patient's body that is used to find acupuncture points [9].

1 F-cun=space between the distal phalangeal joint and the proximal interphalangeal joint of the middle finger.

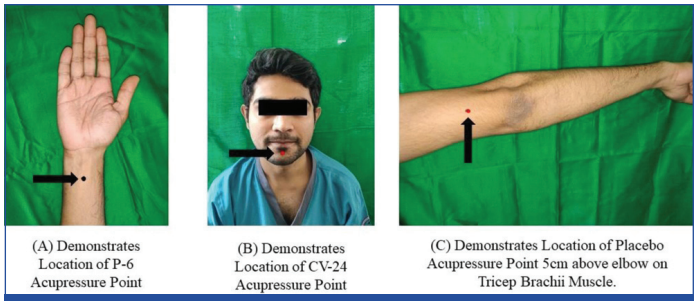
Location of the point P-6 [10,11]**:** A 2 cun above the transverse crease on the wrist on the palmar aspect of the forearm, on the line connecting Pericardium 7 and Pericardium 3 points, between the tendons of musculus flexor carpi radialis and musculus palmaris longus [Table/Fig-2a].

Location of the point CV-24 [10]**:** On the face, below the lower lip on the midline, in the depression (the mento-labial groove) between the point of the chin and the lower lip [Table/Fig-2b].

Location of placebo point: On the Right Arm 5 cm above elbow on the tricep brachii muscle [Table/Fig-2c].

Equipment used for Applying Acupressure

Custom made bands were used to apply pressure over the fixed points at an area less than 2 mm^2 [Table/Fig-3a-c].



[Table/Fig-2]: Location of acupressure points considered in the study.

[Table/Fig-3]: Application of acupressure at Point P-6, CV-24 and placebo using customised bands.

Statistical Analysis of Observations

The data recorded was tabulated, descriptive and inferential statistical analysis was carried out using chi-square test. The programmes used in the analysis was GraphPad Prism 6.0 version with $p<0.05$ considered as level of significance. Chi-Square test was used to compare the effects at each point [Table/Fig-4].

		Point A (P-6) In %	Point B (CV-24) In %	Point C (Placebo) In %
Dickinson and Fiske's scale	Pre-test	Post-test	Post-test	Post-test
Normal	0	20	73.3	13.33
Mild	73.3	56.7	26.7	66.7
Moderate	26.7	23.3	0	20
Severe	0	0	0	0
Very severe	0	0	0	0
χ^2-value		6.70	56.17	4.38
p-value		0.034	0.0001	0.11
Significance		Significant	Significant	Not significant
Order of significance		2	1	

[Table/Fig-4]: Comparison of gag response at Point A, B and C. (Level of Significance <0.05)

RESULTS

From the above statistical analysis, it was observed that as ($p<0.05$) is the level of significance. Out of the 30 subjects, the results were tabulated for pre-application and post-application of acupressure at the respective points. It was found that Point A and Point B were significantly effective in reducing the severity of GR. Point C demonstrated insignificant results. CV-24 is more effective than P6 in controlling the GR in adults within the set age group of 18-28 years of age.

DISCUSSION

Several Points are discussed in literature for elimination of gag reflex. Studies have shown that Point P6 has remarkable anti-gagging effect [6,10-14]. Another point i.e., Point CV-24 has been proven to be effective in controlling gag reflex its efficacy has been proven in many studies [3,10,13]. The current study has described acupressure at CV-24 and P-6 as effective in controlling severity of gag reflex, this is in concordance with the study performed by Sari E and Sari T who evaluated 45 subjects at point CV-24 and P-6 [10]. Similar results were obtained in a case series of 20 subjects by Bilello G, Fregapane A, who evaluated the efficacy of CV-24 and P-6 in controlling GR on a visual analogue scale pre

and post impression making procedure [13]. There are studies which have compared synergistic use of P-6 and CV-24 against use of CV-24 point and the synergism provided better results when compared to singular CV-24 point [10]. There is no study which has compared the efficacy of the points considered in the present study. There is a need to give some information about the safety of acupuncturing; incorrect insertion of acupuncture needle might cause serious adverse events and injury to the tissue. Furthermore, the cross-infection of the hepatitis B or HIV are the other threatening adverse effects of using unsterilized needles. The risk of these infections have been severely curtailed due to the awareness about using disposable needles by health care professional, however the minimum risk probability still exists. These are a few rationales for choosing acupressure over acupuncture [12,15]. Acupressure have been found to be equally effective according to a meta-analysis performed between acupuncture, acupressure, laser acupuncture, and Electrical Stimulation (ETS) in controlling postoperative vomiting in children [16]. The device designed for application of acupressure in this study is made up of auto-polymerising resin, wrist band and Velcro. Advantage being ease of fabrication, non-invasive and its universal fit. It was made in such a way that a projection not exceeding 2 mm^2 was present which would be in contact during the fastened state. Some studies have shown that females have higher incidence of gagging as compared to males [17]. Interviewer/observer bias was eliminated by addition of a placebo point in the study which was known to the researcher but not the observer and the subjects.

Limitation(s)

The study was done in a selected age group; extensive studies for longer period of time will yield more significant results. There are many other points documented which are not considered in the present study, the efficacy of those points remains unknown. The acupressure device used in this study had no standard measurement of pressure which is applied. The present study has not taken gender predilection under consideration. Acupressure as a modality for controlling gag reflex has not been compared with other management modalities.

CONCLUSION(S)

Compelling Literature exists to support the observations of the study, which points out that Acupressure can be effectively used as an adjuvant in controlling the severity of gag-reflex. The method described has no significant downside and can be easily used with no special expertise. The acupressure points considered in the study are effective in controlling the gag reflex, CV-24 is more effective in controlling gag reflex than P-6.

The study can further be extended by using various methods of inducing acupressure at the described points. Intergroup comparison between acupressure and other modalities can also further enhance the knowledge regarding modalities to control gag reflex.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Aug 22, 2019
- Manual Googling: Dec 07, 2019
- iThenticate Software: Dec 23, 2019 (4%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: No
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. Yes

Date of Submission: **Aug 22, 2019**
Date of Peer Review: **Sep 30, 2019**
Date of Acceptance: **Dec 13, 2019**
Date of Publishing: **Jan 01, 2020**