



Evaluation of Effectiveness of Acupressure in Reduction in Anxiety of Pediatric Dental Patients

Prabhjyot Kaur Lidhar*¹, Nathalia Diaz², Manreet Kaur³

1. BDS, Sri Sukhmani Dental College, Dera Bassi, Punjab, India.
2. Bachelor of Dentistry (Odontologia), Autonoma University of Manizales, Colombia.
3. BDS, Gian Sagar Dental College and Hospital, Punjab, India.

Corresponding Author: Prabhjyot Kaur Lidhar, BDS, Sri Sukhmani Dental College, Dera Bassi, Punjab, India.

Copy Right: © 2022 Prabhjyot Kaur Lidhar, This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Received Date: March 11, 2022

Published Date: April 01, 2022

ABSTRACT

Aim: The present study aimed to assess efficacy of acupressure in reducing anxiety in children during the administration of local anesthesia

Methodology: 50 children were selected randomly between 6 and 10 years of age and were divided into 2 groups with 25 children in each group. Group I: control, group II: acupressure, children were the control group where no anxiety-reducing techniques were used during administration of LA. The anxiety scores were recorded by Venham's Clinical Anxiety Rating Scale and subjected to statistical analysis

Result: The post exposure mean scores of Venham's Clinical Anxiety Rating Scale score were lower in the acupressure group.

Conclusion: Acupressure is an easy, cost-effective, non-invasive, and non-pharmacological technique without any side effects. Acupressure can be applied to reduce dental anxiety in pediatric dental patient.

Keywords: Acupressure, Anxiety, Pediatric patient

Introduction

Pediatric patients often respond in a bizarre of ways to the dental treatment offered, they may either readily accept dental treatment or may be extremely fearful, stubbornly resistant or reluctant for any form of treatment. The role of pediatric dentist in managing an anxious child is not only to control the ailment with which the child reports but also to teach the child appropriate means to manage anxiety. (1,2)

Anxiety is one of the most common problems encountered in the dental operator and is a source of challenge for the Pediatric Dentist. In children, anxiety compromises oral health, due to avoidance of personnel dental care; it also significantly impacts dentists during the provision of appropriate treatment. To overcome this, both non-pharmacological and pharmacological methods are routinely use in dental settings. (3) There have been many study on pharmacologic management techniques than on non-pharmacologic techniques. As there is controversial for pharmacologic management then non-pharmacologic technique worth exploring. (4)

One of the most primitively used technique, gaining popularity is acupressure, which involves application of pressure at certain key points that stimulates the nervous system to initiate natural

healing. (5) It is a procedure which either involves application of pressure directly by finger in circular motion or application of consistent and constant pressure through bead/pellet at the stipulated points. (6-9)

Acupuncture works by stimulating the body at certain points. During therapy, thin steel needles are inserted into the areas of interest and then manipulated gently by hand or with light electrical stimulation. These points can also be pressed (acupressure) or warmed (moxibustion) Acupuncture mainly acts by stimulating the nervous system, changing the way the nervous system processes pain signals and releasing natural painkillers, such as serotonin and endorphins in the nervous system. Acupuncture should be considered as an extra tool in the toolbox acupuncture can be used effectively include: Dental pain Dental anxiety and gag reflex. Temporomandibular joint (TMJ) pain or temporomandibular disorder (TMD). (10,11)

Hence, the current study aimed at evaluation of the effect of acupressure therapy on anxiety of pediatric patient during dental treatment.

Material and Method

Present clinical study was conducted on pediatric dental patients requiring administration of inferior alveolar nerve block for dental treatment.

Inclusion criteria

- Children aged between 6-10 years
- Children with first dental visit
- Children requiring administration of inferior alveolar nerve block for dental treatment

Exclusion criteria

- Children with previous history of dental visit
- Children allergic to local anesthesia
- Impaired psychological development
- Systemic diseases
- Mentally or physically challenged patient

The study was carried out on 50 apparently healthy children, selected randomly between the age ranging from 6 to 10 years inclusive of both genders. Child Consent was taken from patients and parents before initiation of treatment along with brief medical and dental history of patient. Selected children were randomly divided into two groups.

- Group 1- Control group: children who were prepared for dental treatment without applying acupressure
- Group 2- Acupressure group: children who were prepared for dental treatment by applying acupressure on Yin Tan point

Yin Tang located midway between the medial ends of the two eyebrows, documented to induce sedation and change sympatoparasym- pathetic nerve balance. Acupressure massage was done on Ying Tang point either with thumb, gentle pressure was applied firmly and deeply perpendicular to the point. A sustained amount of pressure was applied or acupressure massage was given at the point for 2–3 minutes. The local anesthetic injection was given after 2–3 minutes of application of pressure and the application of pressure was continued even while LA was administered.

The anxiety levels in children of both the groups were assessed before and after administration of local anaesthetic solution. Venham’s clinical anxiety rating scale (VCRS) - used to measure the situational anxiety of the child by the clinician. It is an interval rating scale in which the rating procedure is reliable, valid and can be easily integrated in clinical or research activities. It is a six-point scale, with scale points anchored in objective, specific and readily-observable behaviour (Table no. 1).¹² The data were entered over a spreadsheet, and statistical analysis was performed using SPSS software version 16 (IBM, Chicago, United States).

Table no. 1: Venham’s Clinical Anxiety Rating Scale (VCRS)

0	Relaxed, smiling, willing and able to communicate
1	Uneasy, concerned, indicates discomfort. Hands shows discomfort signals. Child agreeable and able to interpret experience as requested. Tense facial expression, may have tears in eyes.
2	Child appears scared. Tone of voice, questions and answers reflect anxiety. During stressful procedure, child protests verbally and cries. Child interprets situation and copes with his/her anxiety.
3	Shows unwillingness to enter situation. Pronounced verbal protest, crying. Try to stop procedure with his/her hands.
4	Anxiety interferes with ability to assess situation. General crying not related to treatment.
5	Child out of contact as he/she actually feels threat. General loud crying and do not listen to verbal communication. Physical restrain required.

Result

A total of 50 subjects were enrolled for the study. The mean reported pre-treatment anxiety score for the control group was 4.11 ± 1.43 , for acupressure group was 4.33 ± 1.38 . The difference between these scores was not significant with $p > 0.05$. The mean value of anxiety found post treatment for the control group was 3.45 ± 1.32 , for the acupressure group was 1.75 ± 1.28 . The difference in post-treatment anxiety was found to be significant with $p < 0.05$.

Table no. 2 Mean VCRS		
Group	Mean VPS	P value
Control group	Pretreatment 4.11 ± 1.43	$P \geq 0.05$
	Post treatment 3.45 ± 1.32	
Acupressure group	Pretreatment 4.33 ± 1.38	$P < 0.05$
	Post treatment 1.75 ± 1.28	

Discussion

The rate of prevalence of dental anxiety is 5-20% in most of the populations which is seen more in children and this tends to decrease as age advances. It is also revealed that females are more prone to dental anxiety as compared to their male counterparts. The relation of dental anxiety with the incidence of caries is well documented thus signifying their avoidance for dental visits. (13)

In present study it was found that acupressure is effective to reduce dental anxiety in children. Acupressure does not require extensive training, in contrast to acupuncture where the background of the practitioner can influence the outcome of the treatment; acupressure can also be taught easily to the child/parent, if used as a self-care measure.³ 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. Acupressure follows the same principles as acupuncture, but it involves stimulation of the points with gentle finger pressure instead of fine needles. In a study where acupuncture was compared with drug therapy, no difference was found, which could be due to the interventions being equally effective or to the studies being insufficiently powered for a valid assessment of equivalence. (14,15) In dentistry, the ability of pressure technique has been proven for managing numerous chronic orofacial disorders, acupressure can be considered as a sensible alternative and/or

supplement to present dental practice, both as an analgesic and for addressing different dental disorders. Acupressure therapy, it mainly helps relieve the pain and discomfort associated with the TMD. (16)

Acupressure also showed to be an effective technique as stimulation of Yin Tang acupoint modulates the perception of pain by influencing the functional connectivity in the pain matrix between the regions of the brain. (17) The myelinated nerve fibers in muscles are stimulated with the application of pressure at acupoints which in turn will activate the midbrain and pituitary hypothalamus via the spinal cord. Various neurotransmitters like Enkephalin, β -endorphin, Dynorphin, Serotonin, and Noradrenalin, play an important role by stimulating A δ fibers situated in the skin and muscles. The A δ fibers which terminate in the second layer of the black horn release the enkephalins which inhibit the incoming painful sensations. (18)

Conclusion

Acupressure is an easy, cost-effective, non-invasive, and non-pharmacological technique without any side effects. Acupressure can be applied to reduce dental anxiety in pediatric dental patient.

References

1. Prabhakar AR, Marwah N, Raju OS. A comparison between audio and audio visual distraction techniques in managing anxious pediatric dental patients. *J Ind Soc Pedodont Prevent Dentist* 2007;12(3):177-182.
2. Singh D, Samadi F, Jaiswal JN, Tripathi AM. Stress Reduction through Audio Distraction in Anxious Pediatric Dental Patients: An Adjunctive Clinical Study. *Int J Clin Pediatr Dent* 2014;7(3):149-152.
3. Avisa P, Kamatham R, Vanjari K, Nuvvula S. Effectiveness of acupressure on dental anxiety in children. *Pediatr Dent*. 2018;40(3):177-83.
4. Farhat-mchayleh N, Harfouche A. Techniques for Managing Behaviour in Pediatric Dentistry: Comparative Study of Live Modelling and Tell – Show – Do Based on Children ' s Heart. *Pediatr Dent*. 2009;75(4)
5. Wang SM, Gaal D, Maranets I, et al. Acupressure and preoperative parental anxiety: a pilot study. *Anesth Analg* 2005;101(3):666-669. DOI:10.1213/01.ANE.0000175212.17642.45.
6. Fassoulaki A, Paraskeva A, Patris K, et al. Pressure applied on the extra 1 acupuncture point reduces bispectral index values and stress in volunteers. *Anesth Analg* 2003; 96:885-890. DOI: 10.1213/01.ANE.0000048713.41657.D3

7. Fassoulaki A, Paraskeva A, Kostopanagiotou G, et al. Acupressure on the extra 1 acupoint: the effect on bispectral index, serum melatonin, plasma-endorphin, and stress. *Anesth Analg* 2007; 104:312–317. DOI: 10.1213/01.ane.0000250911.43942.4e
8. Agarwal A, Ranjan R, Dhiraaj S, et al. Acupressure for prevention of preoperative anxiety: prospective, randomised, placebo controlled study. *Anaesthesia* 2005;60: 978–981. DOI: 10.1111/j.1365-2044.2005.04332.x
9. Schlager A, Boehler M, Puhlinger F. Korean hand acupressure reduces postoperative vomiting in children after strabismus surgery. *Br J Anaesthesia* 2000; 85:267–270. DOI: 10.1093/bja/85.2.267
10. Naik PN, Kiran RA, Yalamanchal S, Kumar VA, Goli S, Vashist N. Acupuncture: An alternative therapy in dentistry and its possible applications. *Med Acupunct*. 2014;26(6):308–14.
11. Zijlstra FJ, Van Den Berg-De Lange I, Huygen FJPM, Klein J. Anti-inflammatory actions of acupuncture. *Mediators Inflamm*. 2003;12(2):59–69.
12. Venham LL, Gaulin-Kremer E, Munster E, Bengston-Audia D, Cohan J. Interval rating scales for children's dental anxiety and uncooperative behavior *Paediatr Dent* 1980 2(3):195-202.
13. Nigam AG, Marwah N, Goenka P, Chaudhry A. Correlation of general anxiety and dental anxiety in children aged 3 to 5 years: A clinical survey. *Journal of International Oral Health: JIOH*. 2013;5:18-24.
14. Rifaat S. Evaluation of acupressure effect on reducing the need for dental injection in fixed prosthodontics. 2019;10(5):268–70.
15. Pilkington K, Kirkwood G, Rampes H, Cummings M, Richardson J. Acupuncture for anxiety and anxiety disorders - A systematic literature review. *Acupunct Med*. 2007;25(1–2):1–10.
16. Rohmetra A, Tandon R, Singh K, Jaiswal A. Acupressure therapy in orthodontics: A review. *Int J Orthod Rehabil*. 2017;8(1):26.
17. Ferreira DCA, Rossi AD, Torres CP, Galo R, et al. Effect of laser acupuncture and auricular acupressure in a child with trismus as a sequela of medulloblastoma. *Acupunct Med* 2014; 32: 190–193. DOI: 10.1136/acupmed-2013-010484.
18. Gupta D, Dalai DR, Mehta P, et al. Acupuncture (針灸Zhēn Jiǔ)–An Emerging Adjunct in Routine Oral Care *Journal of traditional and complementary medicine* 2014;4(4):218–223. DOI: 10.4103/2225-4110.139113