



Evaluating the effectiveness of acupressure on anxiety of mothers in a pediatric surgical waiting area: a randomized clinical trial

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ABSTRACT

Background and Objective: Anxiety in children and their mothers is one of the most prevalent preoperative problems in pediatric patients. The preoperative maternal anxiety can lead to unpleasant complications during preoperative as well as postoperative periods of children. Due to limited studies done in this area, the present study was conducted to investigate the effect of acupressure on preoperative anxiety in mothers with a child undergoing tonsillectomy.

Methodology: The present clinical trial was performed on 61 mothers with a child undergoing tonsillectomy. The samples were randomly divided into two groups of intervention (acupressure) and sham acupressure. The acupressure was applied on the Yintang point in the intervention group and on the Sham point in the sham group. The Spielberger State-Trait Anxiety Inventory (STAI) was used to measure the maternal anxiety. Data were analyzed by descriptive and inferential statistics (analysis of variance).

Results: Statistical analysis showed that the mean score of maternal anxiety before intervention was not significantly different in both intervention and sham groups (42 ± 8 and 41 ± 7 , respectively), but there was a significant difference in their anxiety score after intervention in two groups, 38 ± 2 and 40 ± 6 , respectively. No relationship was found between the demographic characteristics of the samples and the mean score of maternal anxiety.

Conclusion: The results of this study revealed that the acupressure has a positive effect on the attenuation of anxiety in mothers with a child undergoing tonsillectomy. Therefore, due to cost-effectiveness and ease of use, this technique is recommended to alleviate the anxiety in mothers whose children are undergoing surgery.

Keywords: Anxiety; Mother; Children; Surgery; Acupressure

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INTRODUCTION

Millions of children are undergoing surgical operations and diagnostic procedures every day around the world, resulting in an adverse experience for 50%-70% of children in coping with the stress of surgical procedures.^{1,3} The surgical experience

is a stressful event for mothers and children, and family-centered healthcare has a significant role in the pediatric surgery.⁴ According to studies, the mothers of children undergoing different surgeries, experience high levels of anxiety.⁵ Studies showed that more a mother was anxious on the day of operation the more traumatic is the experience for her child.

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Parents experienced very difficult conditions in both the preoperative and postoperative period.^{6,7} Parental preoperative anxiety is of particular importance for the anesthesiologists, as increased it results in increased level of anxiety in children.⁸ Too much anxiety in parents and children can result in many complications and such children experience many side effects.⁹ High preoperative anxiety among pediatric surgery patients is related to lower levels of cooperation postoperatively and an exacerbated postoperative pain.¹⁰ Therefore, it is critical to reduce parents' anxiety, but unfortunately there are limited studies available to assess the preoperative maternal anxiety level and appropriate interventions.^{11,12}

Various studies have shown that mothers with a high degree of anxiety often have high pre and postoperative anxiety levels in their children, warranting effective anxiety reduction techniques to conduct a successful surgical operation without anxiety for both mothers and children.^{13,14} Unfortunately the use of pharmaceutical techniques is not readily available or is not suitable. Therefore, non-pharmacological anxiety relief should be considered in children.^{7,14} The use of acupressure is one of the methods of relieving anxiety in individuals. The acupressure is a subtype of acupuncture in which pressure is used at specific points rather than using the needle.¹⁵ Yintang is one of the effective points to reduce anxiety based on previous studies. This point is located midway between the medial ends of the two eyebrows and at the root of the nose.¹⁶⁻²⁰ Attenuating the maternal anxiety leads to reduce the anxiety of children undergoing surgery and to improve the quality of child care in both pre and postoperative periods.³

There have been a lot of interventions hitherto on preoperative pediatric anxiety, but very little about anxiety in mothers with a child undergoing surgery. Considering the fact that mothers are active members of child care during hospitalization and because of the effects of maternal anxiety on the quality of child postoperative outcomes, the present study aimed to investigate the effect of acupressure on the anxiety level in mothers with a child undergoing tonsillectomy.

METHODOLOGY

The present randomized clinical trial was conducted to evaluate the effect of acupressure on preoperative anxiety in the mothers with a child undergoing tonsillectomy. The samples in this study were randomly assigned into one of the two groups, eg, intervention and sham groups. A preoperative acupressure was performed in the intervention group and sham acupressure in the sham group. The maternal anxiety level was measured using the State-

Trait Anxiety Inventory (STAI) in both groups.²¹ Participation in this study was optional for the subjects and informed consent was obtained from the mothers of children. This study was approved by Guilan University of Medical Sciences Ethics Committee (Ethical code: IR.GUMS.REC.1396.229).

The research population consisted of the mothers of children who were candidates for tonsillectomy. The sample size was 61 according to previous studies and with 95% confidence interval.^{15,20} Exclusion criteria included the presence of mental disorders, skin lesions near the site of acupressure and severe maternal stress (all mothers that used drug for controlling their anxiety). In this study, the mothers were divided into intervention and sham groups by random block allocation. Next, the mothers were directed towards the predesigned room and the anxiety level was measured and recorded by main researcher, and the acupressure was applied to the extra-1 point (Ying-Tang point) in the intervention group and to the sham point in the sham group. In intervention group, deep massage and clockwise rotation for about 5 min was done, but in the sham group, just superficial massage was applied. After 20 min of intervention, maternal anxiety levels were re-measured using STAI instrument.

The data collection tools used in this study included demographic information questionnaire, registration form of maternal anxiety, and c (STAI). The State-Trait Anxiety Inventory (STAI), an English equivalent of its state-trait anxiety inventory, was created by Spielberger in 1970. This questionnaire contains 40 questions, of which 20 questions are assigned to state anxiety and 20 questions are devoted to trait anxiety. The questions about state anxiety in the Likert form are graded into four choices: in no way, sometimes, in general, very much. Adult anxiety questions are also graded in the same way as: almost never, sometimes, more often and almost always.

Finally, two scores were obtained, so that the first score indicates state anxiety and the second score represents the trait anxiety. Each person could also score between 20 and 80 in these two types of anxiety.²¹

Statistical analysis

The collected data were analyzed by descriptive statistics (median, mean, standard deviation) and inferential statistics of one-way ANOVA. The Chi-square test was used to determine the relationship between frequency distribution of demographic characteristics in two intervention and sham groups. Kruskal-Wallis statistical test was applied to determine and compare the changes in anxiety score before and after the intervention. The significance level of the tests was considered to be $p < 0.05$.

RESULTS

A total of 61 mothers were evaluated in this study. The demographic characteristics for mothers and children are presented in Table 1. The Chi-square test found no relationship between the demographic characteristics of mothers and their anxiety scores. According to Table 2, data analysis indicated that the mean score of maternal anxiety before intervention was not significantly different between the two intervention and sham groups (42 ± 8 and 41 ± 7 respectively); but after intervention in both groups, a significant difference was observed in their anxiety scores (38 ± 2 and 40 ± 6 , respectively). In the intervention group, the acupressure reduced the anxiety score, but there was not much change in the anxiety score in the sham group (Table 2).

DISCUSSION

The results of this study showed that the acupressure on Yintang point could reduce the anxiety score in mothers with children undergoing tonsillectomy. In a study conducted by Wang et al. on mothers with a child undergoing anesthesia found that the acupressure has decreased maternal anxiety scores.^{7,14} Agrawal et al. showed that the acupressure to the Yintang point reduced the anxiety score from 8 to 5 in mothers.²² Valiee and colleagues found that the acupressure to

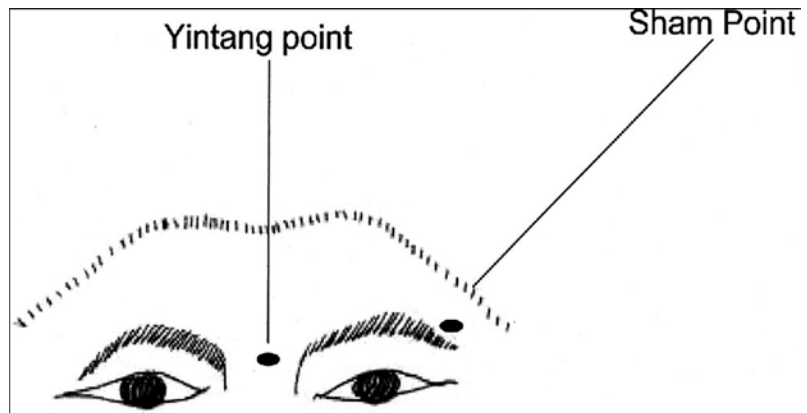


Figure1-Extera-1 and sham acupoint

the Yintang point alleviated preoperative anxiety in adults.¹¹ Unfortunately, the precise mechanism of acupuncture and acupressure effects on anxiety levels is unknown, but there is evidence that acupressure reduces anxiety by regulating the function of neurotransmitters. Several studies have shown that acupressure and acupuncture result in the release of neurotransmitters such as serotonin, which leads to relaxation in individuals and decreasing anxiety.²³ Other studies have shown that acupressure or acupuncture stimulates the release of certain peptides that have a role similar to sedatives in the body and reduces the function of the sympathoadrenal system, which is involved in the development of anxiety, especially during surgery.²⁴ Overall, the present study showed that the acupressure could reduce anxiety in the intervention group. A number of similar studies

Table 1: Demographic characteristics of the mothers and children.

Data given as Mean \pm SD.

Variables	Acupressure Group	Sham Group
Mothers		
Age (year)	36.6 \pm 6.9	37.2 \pm 7.3
Education (year)	16 \pm 3.6	15 \pm 3.1
Children		
Age (year)	5.1 \pm 2.6	5.8 \pm 3.2

Table 2: Comparative total anxiety scores in two groups (Mean \pm SD)

Anxiety	Intervention Group	Sham Group	p-value
Total Anxiety score before intervention	42 \pm 8	41 \pm 7	p > 0.05
Total Anxiety score after intervention	38 \pm 2	40 \pm 6	p < 0.003*

found that the acupressure in the sham group could also reduce the maternal anxiety score and adult samples, which contrasts with the results of the present study. This reduction in the anxiety score in the sham groups mentioned in the studies might be as a result of patients' inspiration that think massage can calm them.

Limitation

Given that the anxiety is a mental mood and its determination requires an adequate understanding of anxiety by individuals, the mothers might be unable to accurately determine their anxiety levels on the anxiety tool. Considering the complexity of measuring the psychological

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and physiological concepts, further research is needed in this area and on the mothers.

CONCLUSION

The acupressure is an inexpensive and easy technique, which can be done by trained individuals without the need for special facilities. Given that the mothers of children undergoing surgery experience a lot of anxiety that can directly affect the child health outcomes in postoperative periods, the present study suggests that the use of acupressure by mothers can be an effective way to manage their anxiety. So managing mother's anxiety can improve the quality of children's care and speed up the discharge process of children from the hospital.

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Authors' contribution:

SP- Initiation of the study, study design, Data collection, Data analysis, interpretation of the data, and writing the manuscript

AE - Study design, main supervision of the project, and revision of draft papers

SS & SM - Study design, Data analysis, interpretation of the data, and writing the manuscript

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