ORIGINAL ARTICLE

Effect of two Methods of Acupressure in Hugo Point and Music on Severity of Pain During IV Insertion in Children

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ABSTRACT

Painful experience and fear from injection is one of the worst experiences for children in therapeutic procedure. One of the most important duties of nurses is prevention from the pain and fear by non-pharmacological methods and with the least complications and cost. This study is aimed to investigate the effects of distractions technique with music and Hugo point massage (compressive effect) on pain reduction while Iv insertion in children. In this semi-experimental study, 90 children were selected during 6 months through available sampling method and divided into three groups randomly. For two groups of children, distraction methods (music and Acupuncture at Hugo Point) were used and the third was the control group. The data collection tool was a questionnaire for assessing Ocher's pain score. Mean score of pain in music group was 5.50±1.55, acupressure at Hugo point was 5.50±1.57 and control was 7.57±1.45. There was a statistically significant difference between interventions and control groups. Hugo point massage as well as distraction by music are both effective in reducing the pain intensity during lvinsertion in children. Therefore, it is recommended that these two methods be used as non-pharmacological methods to relieve and reduce the pain of childrenduring IV insertion. **Key words:** Pain, Acupressure, Child

INTRODUCTION

The reduction of pain is very important in nursing, and this is so important that it is now mentioned as the fifth vital sign. Pain is a subjective, complex, and multidimensional experience consisting of physiological, sensory, emotional, cognitive and behavioral components¹. Therefore, it is difficult to define. Society of pain study has defined it as an unpleasant sensory and emotional experience, which is associated with potential or actual tissue damage². Although pain is an unpleasant experience, but it is a defensive mechanism that suggests tissue damage has occurred or is occurring and this injury has begun a defensive response. Despite of the existing benefits and pain perception that protects the living organism from damage, high exposure to pain has destructive effects, which should be avoided³. Despite understanding the importance of pain, pain was identified as the most important cause of human suffering. Pediatric injections pain is less considered, although they may be hidden due to fear of subsequent injections. Injections cause pain, anxiety, and severe stress, and inability to relieve the associated pain, reduces the co-operation of children⁴. In children with injection pain in each treatment session ,pain may have a negative effect on their physical and mental health. Several methods have been tested to reduce the pain of injections in children. These methods include using local anesthetics, different positions during injection, various methods of distraction, using music and ballooning (10-5) .However, discussion on effectiveness and selection of an effective method to prevent child pain, continues during injection. Iv insertion is an invasive technique in which the vein is perforated for blood transfusion, intravenous fluid injection, or blood sampling. Venous injection and intravenous access through cannula is the second source of pain and the second severe pain in hospital. Despite its painfulness, lv insertion is a common practice in hospitals, because of importance of giving liquids and medications topatient¹¹.

About 25 million people in United States and 90% of all patients admitted to hospital are treated annually with IV injections¹². Most children often express such an act as the most painful and anxious aspect of their illness^{13,14}. All children are irritable, and excited in response to pain; They may even have nightmares, sleep and food nourishment, and those who have not been relieved of pain, feel sacrificed, loneliness, and isolation¹⁵. Unnecessary pain disrupts the relationship between patient and nurse, which leads to distrust of patient to nurse, while trust is a necessary condition for relation and acceptance of therapeutic measures (14). Prevention and relief of pain in children is very important¹⁶. One of the nonpharmacological methods of relieving pain is music. Using music is one of the valuable nursing interventions, which is suggested as an advanced distraction to reduce the pain¹². Using music in children indirectly affects the response to pain and may reduce behavioral responses to pain¹⁷. Other methods of relieving pain include the use of medications, such as local anesthetics, which can be used to reduce the pain caused by Iv insertion¹⁸. The pain caused by injections can reduce the child's cooperation and leads to mental and social disorders. Particularly in children who are repeatedly injected, there has been an unpleasant experience of referring to treatment center, and several studies have examined the effects of pain relief strategies during children lv insertion¹⁹. Many of methods used in researches may be time-consuming or costly, or not feasible. Various methods have been investigated to relieve the pain caused by Iv insertion, such as acupressure, ice massage, bubbling distraction, relaxation with regular breathing, local application of diclofenac gel, distraction with music, and local use of Emla Cream (10-5). In practice, the method that costs less and produces anesthesia or pain reduction in a short amount of time, is considered as an appropriate method. Despite the fact that different approaches are proposed in this field, research on the most appropriate methods for pain reduction continues, which is still affordable and effective. In terms of performance and cost,massage method is more convenient and does not obstruct its implementation. According to the fact that pain relief of children is a part of their rights and also nurses should take every proper step to relieve patient's pain, this study is aimed to compareHugo point massage effect on pain reduction and anxiety caused by Iv insertion in children 6-2 Old years old to perform in Amiral-Mo'menin hospital, Semnan in 2018.

MATERIALS AND METHODS

In a randomized controlled clinical trial (RCT), children aged 3-6 years old who were admitted to pediatric section of Amiral-Momenin Hospital in Semnan and needed intravenous line insertion were selected by available sampling method. Assignment to intervention groups was done randomly using a six-block. The sample size was obtained at least 25 individuals in each group according to the relation $n=(Z_1+Z_2)^2 (2S^2) / d^2$, which was 30 children per group considering 10% drop. The conditions to enter the study were: not acute illness, first experience of Iv insertion in hospital, absence of parents in the health and treatment group, not using sedative medications for 8 hours before ly insertion. Children who needed ly insertion for second time, were excluded from the study. The data collection tool was a questionnaire and a checklist and pain assessment in children was done by Ocher pain scale, which is used for younger children. The child's demographic information questionnaire was completed by a researcher through an interview with child or one of the child's fellows. Iv insertion for all children was done by a single person. The first test group received a Hugo point massage before lv insertion, and second intervention group were children who listened to the music before Iv insertion. Before playing the music, the child's parents were asked about favorite song in the area of approved songs, and his/ her favorite song was played within the determined time limit. The third group or the control group did not receive any intervention and only the usual procedure of Iv insertion was carried out. Data were analyzed using descriptive and inferential statistical methods (ANOVA) using SPSS version 23 software. The significance level in all tests was less than 0.05. The questionnaires were without mentioning the patients' names and this study and its interventions did not cost any expenses for parents. This study was carried out with approval of research council and the Ethics Committee of Biological Sciences Research in Islamic Azad University-Isfahan Branch with IDKHUISF.REC.1397.201 IR.IAU. Ethics were carried out. The IRCT license was issued with the code 20151020024625N11. The informed consent of all children participating in the study was received.

RESULTS

In this study, 90 children in 3 groups were evaluated in terms of interventions effect on pain during lv insertion. The age range of studied children in music group was 37 to 69, in acupressure group at Hugo point was 37 to 66, and in the control group was 36 to 66 months. One-way ANOVA showed that there was no significant difference between mean age of children in three groups (P> 0.05) (Table 1). To determine and compare the effect of two methods of acupressure in Hugo point and music on pain intensity, one-way analysis of variance was used. Findings showed a significant difference betweenmean score of pain betweenthree groups (P <0.05). The LSD post-test showed thatmean score of pain intwo groups of acupressure at Hugo point and music, was significantly lower thancontrol group (P <0.001), but in two groups of acupressure atHugo point and the music was completely the same (P = 1) (Fig. 1 and Table 4 and 5).

Also, there was no significant difference in distribution of children gender, place of residence, history of previous illness, history of previous admission, history of drug use and interest in music between three groups using Chi-square test. (P> 0.05) (Table 2 and 3).

Table 1	Average	ane	of children	in	three	arouns
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Group	Mean	Standard deviation	One-way A	ANOVA test	
-			Р	F	
Music	51.50	10.52	0.87	0.14	
Acupuncture at Hugo Point	50.27	9.99			
Control	51.33	8.63			

Table 2: Distribution of children gender and place of residence in three groups

Variable		Music	group	Acupu	ncture at Hugo Point	Control group Chi-		ii- square test	
		N	%age	N	%age	Ν	%age	Р	X ²
Gender	Female	12	40	14	46.7	15	50	0.63	0.73
	Male	18	60	16	53.3	15	50		
Place of	City	13	43.3	15	50	18	60	0.43	1.69
residence	Village	17	56.7	15	50	12	40		

Table 3: Frequency distribution of disease history, history of previous admission, history of drug use and interest in songs in three groups

Visible	Music group		Acupuncture at Hugo Point		Control Group		Chi Square test	
	n	%age	n	%age	N	%age	Р	Х
History of previous disease	25	83.3	21	70	22	73.3	0.46	1.56
History of Previous hospitalization	25	83.3	21	70	21	70	0.39	1.87
History of drug use	12	40	15	50	11	36.7	0.55	1.18
Interest in song	23	76.7	23	76.7	19	63.3	0.42	1.77

Table 4: Comparison of mean score of pain between three group

Group	Mean	Standard deviation	One-way A	NOVA test
			Р	F
Music	5.50	1.55	<0.001	18.36
Acupuncture at Hugo Point	5.50	1.57		
Control	7.57	1.45		





Table 5: Comparison of mean score of pain between two groups using LSD post-test

Group	P					
Music and Control	<0.001					
Acupuncture at Hugo Point and Control	<0.001					
Music and Acupuncture at Hugo Point	1					

DISCUSSION

Some studies point to the effect of Hugomassage on pain relief during lv insertion^{21,20}. This method, combined with ice simultaneously, in the study of Farrokh Abazari et al. (2012), was effective in reducing the pain associated with Iv insertion in children with thalassemia⁶. The authors proposed the use of ice massage a tHugo Point as one of the non-pharmacological methods to relieve pain severity during lv insertion in children with thalassemia. Shahabi et al. (2007) examined the effect of Local Anesthetic cream (Emla) and music on the amount of pain associated with lv insertion in schoolchildren. The results of study indicated that pain caused by Iv insertion was significantly lower than that of children in control group, using music and Emla Cream, and there is no significant difference between pain severity in child during lv insertion by distraction (music) and Emla cream, and two methods of Emla cream and musiccan be another alternative (22). In this study, regardless ofresearch method and the difference between it and similar studies, musical effects and Hugo point massage were compared with control group, which yielded similar results. Using music and Hugo point massage as non-pharmacological methods have equal effects in reducing pain. Mirtajaldini et al. (2015) investigated the effect of Shiatsu massage as a non-pharmacological and non-invasive method on pain severity caused by

hemodialysis. The results of their study indicated that pain intensity ingroup receiving the Hugo point massage was less than that of the control group and using Shiatsu massage at Hugo point was recommended in order to reduce the pain of needle entry in hemodialysis patients (23). Although this study was done for adults, but similar results have been reported regarding the use of simple non-pharmacological methods in pain relief. In this study, the effect of Hugo Point Massage on reducing pain during Iv insertion in children was observed in comparison withcontrol group. This finding was similar to study of Nematollahi et al. (2010). In the study of Nematollahi et al., effect of distraction methods and regular care on fear during ly insertion in children with strabismus has been studied, and comparison of distraction with bubbling and massage therapy with control group showed their effect on reducing the fear of Iv insertion compared to control group. Distraction was an effective technique in reducing child's fears and can be used when using aggressive methods on children (24). Using diverse methods of distraction in order to reduce pain when performing painful techniques is a subject that has been mentioned in the study of Nazemzadeh et al (2012) by investigating other studies²⁵. Alavi et al. (2005) investigated the effect of bubbling on pain intensity in children with thalassemia. Their results indicated a significant decrease in mean pain intensity in bubbling method¹⁵. Rafati et al. (2014) studied the effect of massage on physiological responses of neonatal hemorrhage pain and found that massage with effleurage technique in Cubital anteus site on physiological symptoms of pain (heart rate, respiration, and oxygen saturation) have been effective and reduce some of the physiological responses to pain associated with neonatal hemorrhage and may be effective in reducing pain, and can be recommended as a non-medical intervention²⁶.

The Hugo point massage, as well as distraction with music, are both equally effective in reducing pain intensity during lv insertion in children. Therefore, it is recommended that, in order to consider children comfort and reduce unpleasant experience, various methods of relieving and reducing non-pharmacological pain must be used to minimize pain experience. This is more likely to be found in children who need frequent lv insertion. According to the results of this study, the Hugo Point Massage and distraction with music in children are recommended as lowcost and uncomplicated non-pharmacological methods for relieving and reducing children pain during lv insertion. It is suggested to conduct similar studies by comparing conventional or drug-based methods in relieving pain during lv insertion and other techniques in which pain is inevitable in children with certain diseases to identify and recommend best practices in children.

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