MIND DISTRACTION EFFECTS ON PAIN RELIEF DURING CHEMOTHERAPY IN THE CANCEROUS CHILDREN AGED BETWEEN 4-14 YEARS OLD

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Abstract

Background and Objective: pain is one of the most suffering side effects of the Chemotherapy, which can result to undesirable experiences of the child. The non-pharmacologic pain relieving methods are effective in some of the medical procedures; the main purpose of this research is investigating distraction effects on pain relief during chemotherapy in children cancerous aged 4 and 14 years old.

Subject’s and Methods: In a quasi-Experimental study on 30 children aged between 4 and 14 years old with cancer diagnosis were selected through a simple sampling method. These children were using from mind distraction method during chemotherapy. The questionnaire was used for data collection. The pain intensity was evaluated by a face criterion which estimates the pain of children.

Results: The results reveal that the average level of pain before and after using of Mind Distraction method was 5.43 and 2.93, respectively. It means that the mind distraction method leads to decreasing the pain intensity for the children.

Conclusion: This study showed for decrease the pain of the children in the medical procedures, the mind distraction method can be used. Non pharmacologic pain relieving interventions in the medical procedures should be studied and evaluated.

Keywords: Children, Cancer, Pain, Chemotherapy, Mind Distraction.

Introduction: The pain resulted from cancer is one of the chronic pains which has multiple reasons [1]. The common reason for the pains resulted from cancer is metastasis to the bone and medical interventions such as surgeries; radio
therapy and chemotherapy \cite{2-3}. Nowadays, chemotherapy is considered as one of the most significant treatments for the cancers, and relatively high rate of prevalence for the cancer, increases its importance. Pain is one of the most suffering effects of the chemotherapy which can affects the patient's life and continuity of the treatment by the chemotherapy medicines\cite{1}.

Although, pain is considered as one of the most important health problems for the adults, but this issue in children has been neglected\cite{5}. The reality is this fact that the children experience the pain too, but their abilities in describing the pain is affected by the limitation of the cognitive conceptions, lack of the verbal skills and fear from the subsequent results\cite{6}.

This fact leads to some problems in the children treatments, especially the children underwent the chemotherapy, and this will lead to undesirable and uncomfortable experiences and their improper reactions toward the following steps of treatment\cite{7}.

The children who can be involved in the games or the children, who can sleep, have no pain\cite{8}. The children want and have affinity toward focusing their mind and senses to other issues. Playing, reading books, watching television, listening music, occupational therapy, commenting about himself and ..., are some of the activities which enable the child to focus his/her mind or senses on desirable and better things, and put the pain away from the central point of his/her mind\cite{9}.

Mind distraction can lead to decreasing the focus and concentration of the patient of the pain\cite{2}. With this, the pain does not go away in reality, but because the concentration and mind of the child is focused on other things, then the pain feeling will be less\cite{8}.

The mind distraction in severe and short term pains which last for some minutes is very effective\cite{5}. In many various studies, the mind distraction has been to be effective in decreasing the pain resulted from cupping, Venipuncture and vaccination\cite{10,11}. With taking the undesirable side effects of the medicines in mind which are used for relieving the pain and not using from non-pharmacologic pain relieving methods in children who suffer from the cancer and undergo the chemotherapy, the present study is conducted in order to determine the effect of the mind distraction methods in relieving the pain for this group of children.

**Subjects and Methods:**

The present study is a semi empirical study which was conducted after taking permission from the Ethics Committee in Zahedan Medical Science University, and it is implemented on the cancerous children who refer to the outpatient
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chemotherapy department of Ali ebneAbiTaleb Hospital of Zahedan city. In this study, 30 children underwent chemotherapy treatment were selected with a simple and continuous sampling method, according to the following criteria for entering the study: their age should be between 4 and 14 years old, not being infected with any other background disease, ability to report the pain, complete consciousness, ability to communicate verbally and not using from ant other pain relieving methods. Exclusion criteria for the present study are as follow: lack of presence of pain during the chemotherapy, lack of cooperation during the treatment, and using from the technique.

The used material for the present study is questionnaire, and it is consisted of two sections. The first section includes the personal and background information for the children such as age, sexuality, the period of chemotherapy; and the second section includes 13 questions. In this questionnaire, for measure the pain level, the standard face pain measure developed by Wang and Baler was used[^4]. This measure is a 6-point scale (0 - 5), including 6 schematic face from the child's face with different level of pains (0 = without pain, 1 = very little pain, 2 = little pain, 4 = medium pain, 4 = severe pain, 5 = very severe pain).

The scientific validation for the questionnaire was determined by the content validation with the comments from the children oncologist and psychologist experts. Its durability was estimated and evaluated by Pearson coefficient, Spearman coefficient and Kendal Tao coefficient based on the variable type. (P = 0.0001 and r = 0.64)

In the present study, for distracting the mind of the children, playing movies or cartoons has been used. For this purpose, 10 cartoon CDs have been used. The time of each of these cartoons is between 30 - 45 minutes. The prepared Cartoons were introduced to the children and they could select the cartoon to be played. 10 minutes before chemotherapy playing cartoons started and it continued for a while after the chemotherapy. For the first time, the questionnaire was completed one hour before starting the chemotherapy with regard to the previous experiences of the child about the pain during the chemotherapy, and this questionnaire was completed according to the visual questionnaire. Then, exactly after finishing the cartoon, the second step of questionnaire was completed. The data were analyzed by SPSS ver. 14 and by using from descriptive statistics and Spearman and Kendal Tao tests and Pair T-Test.

**Results:**

The results of the pair T-Test results for comparison of the pain intensity based on the intervention method show no significant difference, before and after using from the technique (P, 0.0001). Table 1
**Table-1: The average of pain intensity before and after application of mind distraction.**

<table>
<thead>
<tr>
<th>Pain intensity</th>
<th>Mean ( SD)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before intervention</td>
<td>5.43 (0.72)</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>After intervention</td>
<td>2.33 (0.9 )</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

Table-2: shows person coefficient test revealed that there is no significant relation between the time of the chemotherapy and decreasing the pain after using from the mind distraction method. (P = 0.79) and (r = 0.049).

**Table-2: Correlation between severities of pain during treatment with distraction techniques.**

<table>
<thead>
<tr>
<th>variable</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of treatment</td>
<td>1</td>
<td>0.79</td>
</tr>
<tr>
<td>Pain Intensity</td>
<td>0.049</td>
<td>1</td>
</tr>
</tbody>
</table>

The results of the Spearman correlation test, show no significant difference between the age of the children and the pain intensity resulted from chemotherapy (P = 0.84)

The independent T-test revealed that the sexuality variable has no effect for the mind distraction technique in decreasing the pain in the children (P = 0.95).

**Discussion**

The results of the present study revealed that the average pain intensity in the children after using from the mind distraction method has been decreased. According to this finding, on the study conducted by Art et al. it has been reported that mind distraction method by playing music has a positive effect in decreasing the pain resulted from venipuncture in children[11]. In many various studies, the effects of the relaxation and mind imageries on decreasing the pain and anxiety during the chemotherapy have been studied. The results of these studies have proved that these medical interventions can decrease the pain during the treatment[12, 13].

In another study, the mind distraction and cold Therapy interventions for decreasing the pain and anxiety resulted from muscular injection of penicillin 6.3.3 for the children in comparison to a normal group were verified[15]. In a study in which the intervention for controlling the pain resulted from the injections (vascular injection and venipuncture) have been investigated, the use of the mind distraction method with a virtual world, mind distraction method with Computer
presentation and a normal treatment without any intervention were compared, and finally no significant difference was observed between them\textsuperscript{[14]}. The present contradictions can be resulted from the method used for the mind distraction\textsuperscript{[15]}. Because of this fact, the mind distraction methods applications are very limited\textsuperscript{[5]}. The movie playing technique has been verified as a method for decreasing the pain during the chemotherapy, and supports these hypotheses in which it has been said that the mind distraction method with providing the suitable sensory will for activating the reticular network of the brainstem, can stop or neglect the external simulated sense such as Pain\textsuperscript{[16]}. The results of this study show no significant relation between the pain intensity, and age and sexuality. Also the previous studies verified this point\textsuperscript{[5, 11]}. Therefore, with for older or younger patients, the Pain Intensity of the children has no significant change.

There is no significant relation between the boys and girls and the decreasing of the pain by this technique. Also, there is no significant relation between the pain intensity and the period of the chemotherapy.

Generally, this study revealed that the Pain during the chemotherapy can be reduced by playing the favorable cartoons or movies for the children. Therefore, it is recommended for the medical group colleagues, to use from this technique for decreasing the pain of the children. It is recommended for the medical group to pay attention to the pain resulted from medical procedures, and use from the reliable tools for evaluation of them, and according to the self-report of the child about the pain, select the proper intervention. Also before starting any painful treatments, it is recommended for all of the health personnel, to be assure from the cooperation from the children and make them sure that they will do their best in using from the pain reliving methods, and by studying the other non-pharmacologic pain relieving methods such as relaxation, imagery and other mind distraction methods for the painful medical methods in the children at different ages, control the pain properly. It is possible that the results of this study cannot be generalized for different societies with different cultures, and because of this fact it is recommended to conduct the same study in the other cultures, too. Cancer control demands national pay attention and planning.

We are hopeful that managers of health and treatment and other authorities join to gather and eradicate this dilemma (17). Self-care education is emphasized because it leads in active role in treatment process and accepting responsibility for
individual health (18). Social networks are used for behavior improvement, educational performance and other self-care education (19).

**Conclusion**

This study showed that for decreasing pain of the children in the medical procedures, the mind distraction method can be used. It is suggested that nurses apply non-pharmacologic strategies for effective care of patients.

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