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Anxiety Control in the Iranian Children with Chronic Leukemia: Use of a Non-drug Method

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Abstract

Background

Among all malignances, leukemia has the greatest effects on patients 'psychological aspects. Anxiety is common problem in leukemia patients (especially in children). Since no study has addressed the effect of Slow-stroke back massage (SSBM) on anxiety in the pediatrics with chronic leukemia, this investigation aimed to controlling anxiety through a non-drug method (such as SSBM) in children with chronic leukemia.

Materials and Methods

In this Randomized double-blind trial, 35 children with chronic leukemia were placed in the intervention or control groups. The intervention group received 5-minute SSBM sessions, 3-time a week (every other day) for 4 weeks. The data were collected using the Revised Children's Manifest Anxiety Scale (RCMAS). Before the investigation, anxiety levels were measured in both groups, at the 2th, 4th weeks and also two weeks after the end of intervention (6th weeks). Chi-square, repeated measure, and t-test were used for analysis with using SPSS-16.

Results

Most of children were suffered from chronic myeloid leukemia (62.8%). The repeated measure ANOVA showed that, the SSBM significantly reduced progressive mean of anxiety over time ($P<0.05$). While in the control group, mean of anxiety did not change over time. Also, the mean of anxiety increased in the massage group two weeks after end of the intervention, however, it was still lower than the baseline ($P<0.05$).

Conclusion

The findings of this study are suggesting that SSBM, as a non-drug, easy and safe method, is effective for controlling anxiety in chidren with chronic leukemia. Therefore, caregivers should pay attention to this method.

***Key Words*:** Anxiety, Children, Complementary medicine, Leukemia, Massage, Non-drug.

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1-INTRODUCTION

Leukemia is a neoplastic disease, which has very side-affects induced disease and its treatment whose incidences and the mortalities is increasing, especially in Iran (1, 2). In 2012, leukemia developed in throughout the world in 352 000 new case and caused 256 000 deaths (3). Incidence of chronic leukemia is lower than acute leukemia (4).

Hence, pay attention to the chronic type is lower and also very few studies have been conducted on the controlling side-affects in the patients with chronic leukemia, especially in Iran. Among all cancers, leukemia has the greatest effects on psychological aspects (mental and emotional) of the patients (5). Anxiety is one of the most common problems in patients with leukemia (and other cancers too) which effect on their quality of life (especially in children) (5-9).

Patients with non-hematological malignancies suffer from anxiety 25-33%, while, higher 50% of patients with leukemia have anxiety disorders. High levels of anxiety has a long lasting even after the chemotherapy cycles in leukemia patients (almost 35% during the consolidation and induction phases of chemotherapy) (10, 11). Cancer diagnosis, chronic condition, economic cost, hospitalization, cancer treatments and etc. are risk factor for anxiety disorders (5, 12).

Anxiety disorder effects on psychological status, physical status, progress of the cancer, compliance of treatments, the length of hospitalization, patients' survival and even their families (5, 12-16). Hence, controlling anxiety is necessary for improve quality of life in these patients.

Pharmaceutical methods for anxiety control are good, but it has side-effects. Hence, using of non-drugs methods for controlling anxiety is necessary and important. Massage therapy has benefits for controlling side-effects in the cancer patients (17-21). Since no study has addressed the effect of slow-stroke back massage (SSBM) on anxiety in the pediatrics with chronic leukemia, this investigation aimed to controlling cancer-related anxiety through a non-drug method (such as SSBM) in the pediatrics with chronic leukemia in Iran. Of course, we must to considered this point, which use of some non-drug methods in the patients with leukemia is problematic and dangerous (18).

2-MATERIALS AND METHODS

This investigation was a randomized double-blind (patients and researchers) trial, 2-group (massage, control), and repeated measure ANOVA design. It was conducted at the pediatric hematology unit in Shafa researching-teaching hospital affiliated to Ahvaz Jundishapur University of Medical Sciences, Southwest of Iran during 2014 to 2015 (October to March). The study data were collected over a period of 9 months.

Eligibility criteria for this investigation included:

- being 8-18 years old;
- at least 3 months after the cancer diagnosis;
- did not have a medical history of psychiatry diseases induced by other causes except cancer;
- lack of any injury in the massage therapy area;
- did not have a medical history of other cancers.

The exclusion criteria during the study included:

- transfer to another medical centers;
- deterioration in the participants condition;
- unwillingness to continue the investigation.

Of 65 chronic leukemia children which being 8 to18 years old, who had medical records, with using convenient sampling method, 46 participants have the inclusion criteria and were invited to this study. Informed consent for participation was obtained from all participants. The random assignment to the intervention or control group was performed using a computerized random number generator. Finally, considering the samples' drop-out during the study, the data of 35 participants were analyzed (18 children in the massage group and 17 children in the control group) (Figure.1).

The study data were collected using a characteristics form (demographic, and medical history) and the Revised Children's Manifest Anxiety Scale (RCMAS) (22). RCMAS consists 37-item self-report (each item have a two answers, yes or no with a scale ranging from 0 (worst possible health) to 100 (best possible health).

The total score was used for the analyses, which higher scores showing higher levels of anxiety. In this study, reliability of RCMAS was 0.78, using Cronbach's alpha method. The intervention group received 5-minute Slow Stroke Back Massage (SSBM) sessions, 3- time a week (every other day) for 4 weeks. Also, two groups received routine medical-nursing care.

In order to maintain the controlled conditions, one pediatric oncology nurse would speak to the children of control group, during the intervention [speak = 5-minute sessions, 3- time a week (every other day) for 4 weeks].

One week before the start of the investigation, anxiety level was measured through RCMAS. During the 4 weeks of intervention, anxiety levels were measured in both groups, at the 2^{th} and 4^{th} week, respectively, after start of the study. Also, 2 weeks after the end of intervention (6^{th} week), the children anxiety levels was measured in two groups, again. Ethical approval for this study was granted by the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences, Iran.

All patients signed consent form before start of study process.A separate room with proper temperature in the ward, was considered for intervention. Session of massages was carried out at 3-6 P.M.

The massage stages were as follows:

- Children would sit on the chair and lean head on the pillow;
- Small circular strokes on the neck with thumbs;
- Surface stroke using the palm of one hand from the base of the skull to the sacral region and repeating the action on the other side of the spine, while the first hand would move toward the base of the skull;
- Stroke using the thumb along the shoulder blades;
- Stroke on either side of the spine from shoulder to waist using the thumb;
- Sweeping strokes using the palms of both hands from the neck area to the sacrum area (23).

2-1. Data analysis

The analysis of data was carried out by Statistical Package for the Social Science (SPSS) software version 16 (Chicago, IL, USA). P-value <0.05 was considered significant. Descriptive statistics, t-test, Chi-square test, and Repeated measure ANOVA test were used for data analysis in this study.

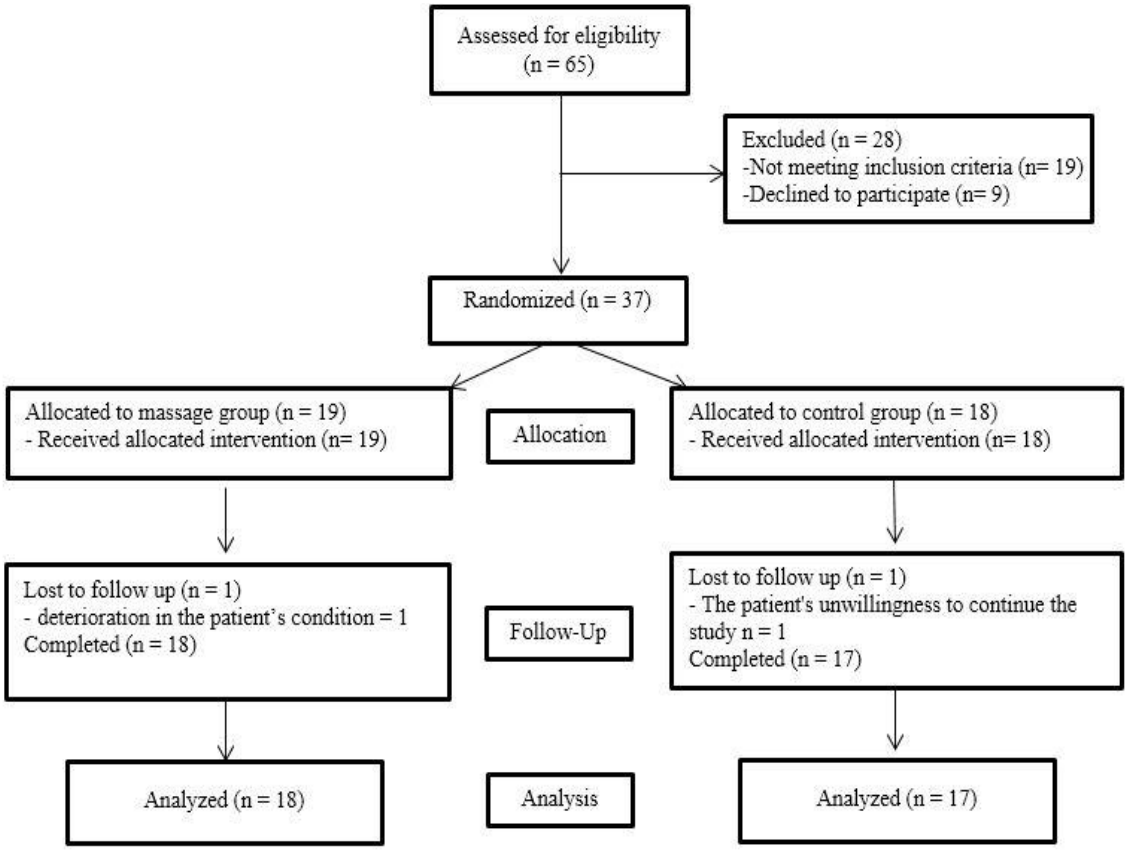

Fig.1: Flow chart of study selection

3-RESULTS

Totally, the data of 35 children were analyzed for this study. Demographic characteristics of participants and disease-related data at baseline of two groups are showed in (Table.1). According to the study findings, 19 children were male (54.28%) and 22 children (62.8%) had chronic myeloid leukemia. Also, majority of children (15 children, 83.2%) in the investigation group were in the second and third chemotherapy cycle at the start of this study. No significant difference was observed of all characteristics data between groups (massage vs. control). Hence, the children of two groups were identical at baseline (Table.1). The mean scores of anxiety has not statically significantly difference between massage and control groups at baseline (26.17±2.72 and 24.65±3.88 respectively, p=0.188). The analysis of repeated measure ANOVA showed that, the SSBM intervention significantly reduced progressive mean score of anxiety over time, in the massage group. While, in the control group, mean score of anxiety did not change over time. Finally, the analysis of repeated measure ANOVA showed that, statically significant difference between trends of mean of anxiety between groups over time (P=0.001). Also, results showed that, the mean of anxiety increased in the massage group two weeks after end of the intervention (6^{th} week), However, it was still lower than the baseline and had a significant difference with that (Figure.2).

Table1: The comparison of characteristics between study groups (Mean ± SD).

Variables	Investigation Group	Control Group	P value
Age	11.03+2.14	12.63+1.93	0.543
Gender			
Male	10(55.6%)	9(52.9%)	0.877
Female	8(44.4%)	8(47.1%)	
Type of chronic leukemia			
CML	12(66.7%)	10(58.8%)	0.448
CLL	6(33.3%)	7(41.2%)	
Time passed from cancers diagnosis			
Mean of months	23.41+4.12	21.62+3.56	0.121
Chemotherapy cycles received			
1	3(16.6%)	2(11.7%)	0.314
2	8(44.4%)	9(52.9%)	
3	7(38.8%)	6(35.2%)	

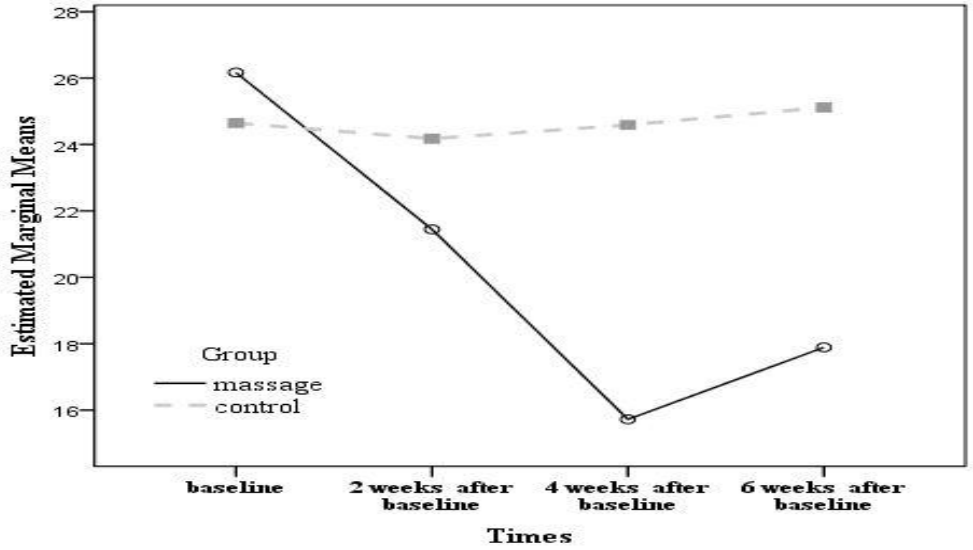

Fig. 2: The comparison of trend of anxiety scores mean between groups at over day time

5- DISCUSSION

Our results of this study demonstrated that, Slow-stroke back massage (SSBM) reduced progressive anxiety level over time in the pediatrics with chronic leukemia. Hence, SSBM as a non-drug method is a useful for anxiety control in these patients. In a clinical trial study by Haun et al. (2009) on pediatric oncology and hematology patients, Swedish massage significantly reduced the pediatrics' anxiety level (24). Post-White et al. (2009) studying pediatric oncology, for 4 weeks using weekly massage sessions, showed a decrease anxiety level in pediatric younger than 14 years, and patients explained that massage therapy caused them feel better (25). Also, study by Phipps et al. (2005), in the pediatrics with cancer undergoing bone marrow transplantation, indicated professional massage group had a significant improve immediate anxiety and discomfort (20). In another study by Çelebioğlu et al. (2014) observed which massage therapy improves the anxiety induced intra-thecal therapy or bone marrow aspiration, in cancer children (17). The results of these studies are consistent with the current finding, which showed

that, massage as an effective non-drug method in controlling anxiety-induced cancer in the pediatrics. Also, Study by Taylor et al. (2009) in the adult patients with acute myeloid leukemia showed that massage therapy intervention can improve anxiety control in these patients (26).

The study results showed that, the mean scores of anxiety increased in the massage intervention group two week after end of the intervention (6^{th} week), However, it was still lower than the baseline and had a significant difference with that, which indicates the relatively lasting effect of massage therapy for controlling cancer-related anxiety. Also, massage therapy intervention is accepted by participants and can create a feel better and good relationship between pediatrics and management teams (27). Hence, massage intervention can help to caring teams for lower use of medication methods.

5-1. Limitations: One limitation of current study was a small sample size. Therefore, it is suggested that other investigations with larger sample sizes be conducted in other places.

6- CONCLUSION

This study showed that the Slow-stroke back massage (SSBM) can improve cancer-related anxiety in the children with chronic leukemia. Hence, we suggesting that SSBM, as a non-drug, easy and safe intervention for controlling anxiety in the pediatrics with chronic leukemia. Therefore, caring team (especially oncology nurses) should be increased knowledge about this method and use of this method in the caring activity for pediatrics with chronic leukemia.

7-ABBREVIATION

- SSBM: Slow-stroke back massage;
- CML: Chronic myeloblastic leukemia;
- CLL: Chronic lymphoblastic leukemia;
- RCMAS: Revised children's manifest anxiety scale
- SD: Standard deviation;
- RCT: Randomized controlled trial.

8- CONFLICT OF INTEREST: None.

9- ACKNOWLEDGMENT

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10-REFERENCES

1. Miladinia M, Baraz S, Shariati A, malehi As, Ahmadizadeh A. Relationship between chronic pain and quality of life in patients with acute leukemia undergoing chemotherapy. Jundishapur J Chronic Dis Care 2015;4(3):18-24.

2. Hadi N, Moezzi M, Aminlari A. A case control study of acute leukemia risk factors in adults, Shiraz. IranShiraz E-Med J 2008;9:2–10.

3. Cancer research UK. Leukaemia (all subtypes combined) incidence statistics Available at: http://www.cancerresearchuk.org/cancer-info/cancerstats/types/leukaemia/incidence/2012 . Accessed in 2014, 20/11.

4. Musarezaie A, Khaledi F, Esfahani H, Ghaleghasemi T. Factors affecting quality of life and fatigue in patients with leukemia under chemotherapy. Educ Health Promot. 2014;3: 64.

5. Moeini M, Taleghani F, Mehrabi T, Musarezaie A. Effect of a spiritual care program on levels of anxiety in patients with leukemia. Iran J Nurs Midwifery Res. 2014;19(1):88–93.

6. Cretua RZ, David AM. Comparative study: the quality of life of patients with leukemia, anxiety and depressive disorders. Procedia-Social and Behavioral Sciences 2014;127:883–86.

7. David AM, Cretub RZ. The evolution of depression and anxiety in cases of leukemia depending on the phases of the disease and the

treatment. Procedia - Social and Behavioral Sciences 2014;127:887-91.

8. Myers RM, Balsamo L, Lu X, Devidas M, Hunger SP, Carroll WL, et al. A Prospective Study of Anxiety, Depression, and Behavioral Changes in the First Year After a Diagnosis of Childhood Acute Lymphoblastic Leukemia. Cancer 2014;120(9):1417–25.

9. Gouva M, Damigos D, Kaltsouda A, Bouranta P, Tsabouri S, Mavreas V. Psychological Risk Factors in Acute Leukemia. Interscientific Health Care. 2009;1(1):16-20.

10. Montgomery C, Pocock M, Titley K, Lloyd K. Predicting psychological distress in patients with leukaemia and lymphoma. J Psychosom Res. 2003;54(4):289–92.

11. Andrykowski M, Greiner C, Altmaier E, Burish T, Antin J, Gingrich R, et al. Quality of life following bone marrow transplantation: Findings from a multi-centre study. Br J Cancer. 1995;71(6):1322–29.

12. Stark D, House A. Anxiety in cancer patients. Br J Cancer 2000;83(10):1261–67.

13. Palmer J, Fisch M. Association between symptom distress and survival in outpatients seen in a palliative care cancer center. J Pain Symptom Manage 2005;29(6):565–71.

14. Sobel R, Markov D. The impact of anxiety and mood disorders on physical disease: The worried not-so-well. Curr Psychiatry Rep 2005;7(3):206–12.

15. Malekian A, Alizadeh A, Ahmadzadeh G. Anxiety and depression in cancer patients. J Res Behav Sci 2007; 5(2):115–9.

16. Mystakidou K, Tsilika E, Parpa E, Katsouda E, Galanos A, Vlahos L. Assessment of anxiety and depression in advanced cancer patients and their relationship with quality of life. Qual Life Res 2005;14 (8):1825–33.

17. Çelebioğlu A, Gürol A, Yildirim Z, Büyükavci M. Effects of massage therapy on pain and anxiety arising from intrathecal therapy or bone marrow aspiration in children with cancer. Int J Nurs Pract 2015;21(6):797-804.

18. Miladinia M, Baraz S, Mousavi Nouri E, Gholamzadeh M. Effects of Slow-stroke Back Massage on Chemotherapy-induced Nausea and Vomiting in the Pediatrics with Acute Leukemia: a Challenge of Controlling Symptoms. International Journal of Pediatrics 2015;3(6.2):1145-52.

19. Falkensteiner M, FrancoMantovan, IreneM¨uller, Them C. The Use of Massage Therapy for Reducing Pain, Anxiety, and Depression in Oncological Palliative Care Patients: A Narrative Review of the Literature. ISRN Nursing 2011: 929868.

20. Phipps S, Gray E. Massage therapy in children undergoing Hematopoetic stem cell transplantation: Results of a pilot trial. J Cancer Integr Med 2005;3(2):62–70.

21. Post-White J, Fitzgerald M, Savik K, Hooke MC, Sencer SF. Massage therapy for children with cancer. Journal of Pediatric Oncology Nursing 2008;26(1):16-28.

22. Reynolds CR, Richmond BO. What I think and feel: A revised measure of children's manifest anxiety. Journal of Abnormal Child Psychology 1978;6(2):271-80.

23. Mok E, Woo C. The effects of slow-stroke back massage on anxiety and shoulder pain in elderly stroke patients. Complement Ther Nurs Midwifery 2004;10(4):209–16.

24. Haun JN, Graham-Pol J, Shortley B. Children with Cancer and Blood Diseases Experience PositivePhysical and Psychological Effectsfrom Massage Therapy. International Journal of Therapeutic Massage & Bodywork 2009; 2(2):7-14.

25. Post-White J, Fitzgerald M, Savik K, Hooke MC, Hannahan AB, Sencer SF. Massage therapy for children with cancer. J Pediatr Oncol Nurs 2009;26(1):16–28.

26. Taylor AG, Snyder A, Anderson JG, Brown CJ, Densmore JJ, Bourguignon C. Gentle Massage Improves Disease- and Treatment-Related Symptoms in Patients with Acute Myelogenous Leukemia. J Clin Trials 2014; 4: 1000161.

27. Miladinia M, Baraz h, Nouri EM, Gholamzadeh M. Effects of Slow-stroke Back Massage on Chemotherapy-induced Nausea and Vomiting in the Pediatrics with Acute Leukemia: a Challenge of Controlling Symptoms. Int J Pediatr 2015;3(6-2):1145-52.