The effect of music with relaxation on the patients' pain intensity due to burn dressing

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ABSTRACT

Background and Aim: Pain management in burn patients is important, especially during daily dressing. The study compared the efficacy of non-pharmacological methods of pain relief during dressing is an effective method to be introduced if possible.

Methods & Materials: This study is a clinical trial involving patients with both control and traial groups of 20 to 55-year-old admitted to a hospital burn unit of Tohid and Besat. The samples selected based on purposive sampling method available and is dumped. On the third day burn (after the acute phase of burn) by throwing coins patients placed in the first group (music) or second (relaxation). Before entering the dressing room and after dressing her pain evaluated by Assessor with using a visual analog scale of pain (VAS) (control phase)**.** On the Fourth day for the first group instrumental music was broadcast for 20 minutes before the patient's entering to dressing room And then their pain before and immediately after dressing measured.(music group)

For the second group of patients before dressing, were taught relaxation techniques And for 20 minutes was followed by patients And then their pain before and immediately after dressing measured.(relaxation group)

Results: In The music group mean pain score before and after dressing $7/8 \pm 1/5$ is $5/2 \pm 1/8$. Which represents test is significant ($p<0.05$).

And the mean pain score after dressing in relaxation group was $5/6 \pm 1/8$ and music group was $5/2 \pm 1/8$. That Shows the relationship between pain after dressing in separate groups in the test (t-test) was significant ($p<0.05$).

Conclusion: Overall, comparing the effect of music and relaxation on dressing pain intensity of burn patients can be Found that music therapy and relaxation as well as have an impact on pain burns reduction. But cannot choose between the two methods was more effective way**.**

KEY WORDS: Relaxation, Pain, Music Therapy, Burn.

1. INTRODUCTION

Burning is one of the most common of causes of death in developed countries and it is considered to be the 4th main cause of trauma in the world. A frequency of more than 11 million of advanced burning was reported in 2004 who required medical care. This frequency is more than the frequencies of Aids and Tuberculosis put together (Peck, 2012). The pain caused by burning is the most severe acute chronic pain (Brown, 2012).

Using music to control the pain in hospital wards is a safe, easy and cheap method which can be easily incorporated into the daily care schedule of hospitals (Mandek, 2013; Cole and LoBiondo-Wood, 2012). When patients listen to their favorite music, the muscles will relax, the mind will move away from pain, the pain sedates, and fewer pain signals are sent to the central nervous system (Comeaux, 2012). Music is a cheap, non-medical, and non-invasive intervention with no side effects which can be utilized along with other methods (Allred, 2010). On the other hand, Relaxation is defined as a state free from any anxiety or skeletal or muscular pressure which results in a peaceful and balanced state of mind. Using Relaxation to reduce the pain of patients is becoming increasingly more popular. Progressive muscular Relaxation is a method that soothes the muscles (Bikmoradi, 2014). There are various Relaxation interferences such as: massage, touch therapy, music therapy, biofeedback, prayers, and concentration. Relaxation response reduces stress and results in higher vagal flow and less activity of sympathetic nervous system (Rasolabadi, 2015). . The obvious physical signs of Relaxation are quite different from those of stress: less blood pressure, bradycardia, reduced fluid and sodium retention, and natural levels of glucose and insulin. As the results indicate, Relaxation and parasympathetic system activities have a protective and an anti-fibrillatory influence on the heart. Higher sympathetic system activities play a major role in causing life threatening dysrhythmia (Carolyn, M). Various researches and studies have confirmed the effects of Relaxation on stress reduction, analgesia, improving the vital signals, and reducing dysrhythmia (Hossini, 2010).

Reducing the pain scale of patients is one of the main duties of nurses and controlling the pain of burn patients during daily dressing is very important. In this research, we will compare the influence of two non-medical methods to reduce pre-dressing pain (music and tranquilization) so that the more effective method can be identified.

2. MATERIALS AND METHODOLOGY

This is a clinical trial conducted in two groups. Due to the small sample size and limited research time, the burning centers in Hamedan (Besat Hospital) and Kurdistan provinces (Towhid Hospital of Sanandaj). The sampling period lasted from October 2005 to February 2006.

The samples were selected through the convenient sampling method and 42 cases were selected from each hospital according to research criteria. The following inclusion criteria were defined: the patient should be 20 to 55 with a burning level 9-36%, the burning needs to be relatively thick, the burning needs to be unintentional, the patients must be able to speak and understand Persian, the daily procedure of ward must be followed for dressing their wounds, patients are required to be within 48 hours after burning to before closing their wounds, thermal burn must be observed among them, the patients should have no mental disorders and no burning in the area of ears, no neurologic disorders and numbness in their target burnt organs and no severe hearing impairments should be observed among the participants, and they were required to be interested in instrumental music. Exclusion criteria: if the patient is not capable of cooperating with the research team and does not possess the necessary Relaxation skills. First, the written consent of patients was obtained. The patient's scale of pain before and after dressing was measured using VAS. On the first day of research (third day of burning), the patients were randomly placed within the first (music) or second (tranquilization) group and scale of pain was measured before and after dressing using VAS (control phase). On the second day of research (fourth day of burning) and right before patients entered the dressing room, instrumental music was played for the first group for 20 minutes and their pain scale was measured using VAS (music group). As of the second group, the Relaxation method was taught to the patients and they were asked to exercise these methods for 20 minutes before dressing. Then, their pain scale right before and after dressing was measured using VAS (Relaxation group). To prevent any bias in data collection, the pain scale of patients was measured by nurses of the same gender who were instructed for this purpose.

Having collected the demographic information of patients and measuring their pain scale before and after dressing, data analysis was carried out using statistical methods of variance analysis and data analysis using SPSS v16.

3. RESULTS

The average age of patients in Relaxation and music group was 38.5 ± 11.2 and 36.4 ± 10.3 years old respectively and the t-test of the two independent groups showed no significant difference between the two groups in terms of their average ages ($P > 0.05$). 59.5% of the participants in Relaxation group were male and the remaining 40.5% participants were female. In music group, 47.6% of the participants were male and 52.4% were female. 42.6% of the participants in Relaxation groups were living in cities and 57.4% were in the country side, while in music group, 59.5% of the participants were living in cities and 40.5% had rural dwellings. The following statistics was achieved concerning the marital status of participants in Relaxation group: 64.3% married, 28.6% single, 4.8% widowed, and 2.4% divorced. The marital status in music group yielded these results: 59.5% married, 31% single, 4.8% widowed, and 4.8% divorced. In terms of percentage of burning, the following results were achieved in Relaxation group: 2.4% of the participants had level 1 burning, 16.7% of the participants had level 9 burning, 31% of the participants had level 18 burning, 33.3% of the participants had level 27 burning, and 16.7% of the participants had level 36 burning. The following results were achieved in concerning burning levels in music group: 16.7% of the participants had level 9 burning, 23.8% of the participants had level 18 burning, 33.3% of the participants had level 27 burning, and 26.2% of the participants had level 36 burning. As a result, the chi-square test showed no significant difference between these two groups in terms of the above-said factors ($P > 0.05$). Thus, the patients were similar in terms of all the above-said points.

The levels of education among the participants was also studied and the following results were achieved in Relaxation group: 9.5% were illiterate, 23.8% were below high school diploma, 33.3% had high school diploma, 21.4% had college diploma, and 11.9% had a bachelor's degree. As for the music group, 11.9% were illiterate, 14.3% were below high school diploma, 31% had high school diploma, 33.3% had college diploma, and 9.5% had a bachelor's degree. The results of Chi-square test showed no significant difference between the two groups in terms of levels of education ($P > 0.05$). Thus, the two groups were nearly the same in terms of level of education.

The average pain scales in Relaxation group before and after dressing were 8.3 ± 1.1 and 5.6 ± 1.8 respectively. The average pain scale before and after dressing in Relaxation group is significant according to t-test ($P < 0.05$) (table 1). The average pain scores in music group before and after dressing were 7.8 ± 1.5 and 5.2 ± 1.8, respectively. As a result, the difference between pre- and post-dressing pain scale in music group is statistically significant ($P < 0.05$) (table.2).

The average pre-dressing pain scores in Relaxation and music groups were 8.3 ± 1.1 and 7.8 ± 1.5 respectively. According to the table below, the difference between the two groups in terms of pre-dressing pain scores is not statistically significant ($P > 0.05$) (table.3). The average post-dressing pain scales in Relaxation and music groups were 5.6 ± 1.8 and 5.2 ± 1.8 respectively. Thus, there is no statistically significant difference between the two groups in terms of post-dressing pain levels ($P > 0.05$) (table.4).

Having studied the significance of post-dressing pain levels in both groups after discarding the effect of people's pain before dressing using covariance analysis test, it turned out that the influence of the type of intervention (music or tranquilization) on post-dressing level of pain is far from being significant ($P > 0.05$) (table.5).

Table.1. the difference between the average pre- and post-dressing pain level in Relaxation group

Group	Intervention	Average	SD	Level of t	df	P-value
Tranquilization	Before	8.3	1.1	8.336	41	0.000
	After	5.6	1.8			

Table.2. the difference between the average pre- and post-dressing pain level in music group

Group	Intervention	Average	SD	Level of t	df	P-value
Music	Before	7.8	1.5	9.964	41	0.000
	After	5.2	1.8			

Table.3. average pre-dressing pain score in both groups

Variable	Group	Average	SD	Level of t	df	P-value
Pre-dressing pain	Tranquilization	8.3	1.1	1.635	82	0.1
	Music	7.8	1.5			

Table.4. average post-dressing pain score in both groups

Variable	Group	Average	SD	Level of t	df	P-value
Post-dressing pain	Tranquilization	5.6	1.8	1.06	82	0.2
	Music	5.2	1.8			

Table5. Post-intervention pain scale in both groups after removing the effect of pre-dressing pain score

Source of error	Freedom degree	Mean square error	Level of F	P-value
Pre-intervention pain score	1	25.00	7.92	0.01
Intervention group	1	1.09	0.34	0.56
Error	81	3.15	-	-

DISCUSSION

A comparison between the pre- and post-dressing pain scores in the music group yielded results similar to those achieved by Naderi, (2013) in Shahid Rajaiee Hospital of Ghazvin. In the former study, they reported the following pain scales: 8.6 ± 2.1 in control group, 5.3 ± 0.9 in non-selective music group, and 4.7 ± 1.9 in selective music group. The difference between the control group and non-selective control group (P = 0.04) and selective music (P= 0.03) was significant. Our results are also in line with the research conducted by Taan, (2010). Their results pointed to a significant reduction of pain before (P < 0.025), during (P < 0.05), and after (P < 0.025) dressing during those days when patients had listened to music. Taking into consideration the results of the study conducted by Motahedian, on the pain of surgery patients which points to the clear reduction of pain in music group compared to witness group, we understand that music is really effective in reducing post-procedure pain and it can be utilized as a supplementary medical treatment method to reduce pre- and post-therapeutic procedures' pains.

The average pre- and post-dressing pain scores in our research is similar to the results reported in the study conducted by Rafiie, (2009) in Motahari Hospital of Tehran. In that research, the average pain score of burn dressing in test and control groups was 45.93 ± 24.97 and 48.05 ± 25.61 respectively which shows this test is significant (P < 0.05). These results are also in line with those achieved by Varani Farahani based on which, the effects of muscular Relaxation on reducing the pain score of patients are proved based on the results of t-test. Overall, we may conclude that Relaxation has a major effect on reducing the pain scale of burning patients and it can be used as a supplementary method to reduce burning pain along with medical therapy.

The average post-dressing scores in Relaxation and music groups were 5.6 ± 1.8 and 5.2 ± 1.8 respectively. With this explanation, we realize that investigating the significance of post-dressing pain in both groups by removing the influence of pre-dressing pain using covariance analysis showed that if we take into consideration the pre-intervention pain scale, the influence of the type of intervention (music or tranquilization) on post-dressing pain scale is not significant. As a result, both methods are really useful in reducing the pain level of patients, but we can't decide which one is more effective.

In another research conducted by Shaban, titled "The Effect of Two Nonmedical Methods (Progressive Muscular Relaxation and Music Therapy) on the Pain Scale of Patients Suffering from Cancer", the results pointed to a significant difference in terms of pain scale between each Relaxation and music-therapy group during the pre- and post-intervention periods (P < 0.001). A significant difference was also observed between the Relaxation and music group in terms of pain scale (P = 0.016). This means that reduction of pain in Relaxation group was not more impressive. Although both methods of progressive muscular Relaxation and music were really effective in reducing the pain, the effect of Relaxation was significantly higher than music.

4. CONCLUSION

Keeping in mind the results of this research, we may arrive at the conclusion that music therapy and Relaxation are really effective in reducing the scale of dressing pain among burn patients, but it is impossible to choose the better method among these 2 methods.

5. ACKNOWLEDGMENT

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