

## Effect Of Muscle Relaxation And Mental Imaginary Technics On Pain Of Patients With Second-Degree Burn

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**Background:** Pain is main issue after burn. Medication do not relief pain in burn patients completely. Thus, use of Non-pharmacologic interventions such as Muscle relaxation and mental imagery could decrease pain. **Objective:** This research examined efficacy of pain management strategies, including Benson muscle relaxation and mental imagery in order to reduce pain in patients with second-degree burn. **Method:** This study was a clinical trial on 135 patients with burn that divided in two test groups and a control group by available method. Burn pain severity, in the first and second day, before and after dressing without any intervention in control group measured. After discharge, patients in the control group, to a group of men, relaxation techniques and another group of men, imaging techniques taught and measured pain intensity. Then pain mean all three groups compared. **Results:** There wasn't significant difference between mean of pain severity at first day before and after dressing with mean of pain severity before dressing at second day ( $P > 0.05$ ). There was significant difference between mean of pain severity before and after dressing at second day. There was no significant difference between mean of pain severity in two groups. **Conclusion:** Both technics resulted in decrease of pain severity in burn patients but mental imagery is more effective. [Zakeri-Moghadam MNJIRM 2016; 7(4):17-21]

**Keywords:** Muscle relaxation, mental imaginary, burn

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**Introduction:** Burn occur in every age and socio-economic groups. According to American burn association report, 450000 people receive treatment due to burn injuries in USA and about 45000 people have hospitalized that 25000 people from those hospitalize in special burn centers.<sup>1,2,3</sup> Burn damages are painful and usually resulted in disability. Burn's pain originated from skin damages and clinical interventions included cleaning, physiotherapy, join skin and surgery.<sup>4,5</sup> Burn's recovery is a long and difficult process accompanied by painful clinical measures, long hospitalize bad feelings and psychological problems. Burn can have resulted in anxiety, depression, emotional fatigue, low quality of life and sleep disorder. Burn patients suffered from pain in all stages included during hospitalization and during treatment procedures. Most pain is often experienced during dressing changes which severe pain during dressing causing complications such as stomach ulcers and duodenal ulcers, weakness and low blood pressure, fecal and urinary incontinence and shock.<sup>6,7</sup>

Opioid drugs do not make pain relief sufficiently and may have side effects including abuse opiates; stimulants exacerbate pain, nausea and vomiting,<sup>7</sup> respiratory depression and

constipation.<sup>8,9</sup> Insufficient pain relief led to chronic pain, post-trauma stress disorder (PTSD), disability, decreased appetite, decreased patient interactions, and lack of patient participation in treatment and delay in the recovery process, therefore, appropriate pain control burn should be a priority care decision.<sup>10</sup> Pain management technics in burn patient used depend on pain severity. Medication treatment for burn pain control is included narcotic pain with anti-anxiety drugs (benzodiazepines, etc.).<sup>11-13</sup> Severe pain and anxiety among burn patient do not relief by medication only. So in the comprehensive care plan of the patient, the use of non-pharmacological pain relief methods should not be overlooked, non-pharmacologic interventions can promote perception and response to pain.<sup>14,7</sup>

Non-pharmacologic interventions to treat burn's pain include art therapy and play therapy, hypnosis, distraction, biofeedback, music therapy, guided imagery and relaxation techniques such as muscle relaxation is that these interventions are effective in reducing anxiety and pain severity.<sup>4,12,15</sup> Muscle relaxation alters significantly the activity of the autonomic nervous system, thus influence in patients' physiological responses to stress. So that oxygen consumption

and carbon dioxide emissions reduced, respiration and heart rate reduces and increases mental concentration and good feeling.<sup>16</sup> Another pain-relief interventions is, mental imagery as an effective method in reducing anxiety and pain perception, based on the mind-body techniques that believes that mind and body are linked together and can influence and reinforce each other. Using mental imagery can lead to pain relief, comfort sleep and patient's relaxation and it help to improve his relationship with the people around him.<sup>4</sup>In general, patients with burns, especially second-degree burns, suffer from severe pain during care procedures such as changing dressings, If not relieved; it is associated with many physical and mental effects. In addition, burn pain management using narcotic drugs (morphine, etc.) have been associated with side effects and usually these drugs do not work effective. The collection problems caused by burns and limited number of studies in the field of non-pharmacological methods of pain management in patients with burn, led to the research that examined efficacy of pain management strategies, including Benson muscle relaxation and mental imagery in order to reduce pain in patients with second-degree burn.

**Methods:**This study was a quasi-experimental clinical trial on 135 patients with second-degree burn wounds. Samples selected by available method and divided into two case groups (relaxation and mental imagery) and a control group. The sample size for each group was consider 45 people. Inclusion criteria was included: (1) patient are male, second-degree burn wound patients. (2) The patients with full consciousness and are able to cooperate. (3) Patients have ranged in age from 20 to 45 years. (4) Patients with burns are unintentional and non-inhaled. (5) Patients which burned 40-60 percent whole of body. (6) Patients who are living in the acute phase of burn (48 hours after burn). (7) Patients without underlying disease "neurological disorders and numbness in the limbs (8) Mental disorders such as Alzheimer or attention disorder, muscle diseases, including hyponatremia and hypocalcaemia electrolyte imbalances" and patient with no anxiety known problems.

Exclusion criteria was included: patient's Uncooperative, treatment period more than a

month among control group patients, use of neuromuscular blocking agents (baclofen, dantrolene, etc.), excessive use of drugs and sedatives before entering the dressing room and need for EEG surgery (Early Excision Graft). So how did the intervention, patients who hospitalized in the men's ward at acute burn time (48 hours after burn) and had the inclusion criteria, was stand in the control group after getting consent. Then it was determined severity of pain in control group's patients during the period of acute wounds (burns for 48 hours), before and after dressing accompany with routine actions (morphine by weight). No intervention in this group performed. After last discharge control group patients, relaxation and imagery sampling of patients, respectively, in one and two men ward carried out. After education of Benson muscle relaxation and mental imagery techniques to patients, pain severity of patients in the test group during the period of acute wounds (burns for 48 hours), before and after dressing accompany with routine actions (morphine by weight) was determined. Then before changing dressing measured pain severity by Visual Analogue Scale (VAS) tool. At second day, repeated measures carried out at first day. Relaxation steps was include: Choose a short phrase or word that reflects an individual's basic belief system, select a comfortable position, to close eyes, relaxing the muscles, start paying attention to your breathing and focus on its selective use of the word obsession, concentration and continue this process for a period of time. Mental imaginary educated in this way: requested from patients to imagine they are in a quiet and beautiful place, please pay attention to colors, sounds, lives and smells. Data analyzed by SPSS version 16 software. It used from ANOVA and chi-square test.

**Results:** Analysis of demographic data and disease data in samples by statistical tests; ANOVA and Chi-square showed that two test groups and control group do not had significant statistical difference in age ( $P=0.99$ ), marital status ( $P=0.91$ ), economic status ( $P=0.95$ ), education ( $P=0.74$ ) and burn percent ( $P=0.97$ ). In other hand, the three groups were homogenous in underlying variables (Table 1). In addition, results showed that there was no significant difference between mean of pain severity at first

day before and after dressing with mean of pain severity before dressing at second day. However, after dressing at second day it was (Table2). Mean of pain severity in control group at second day changed from 90.5 percent to 89.5 percent. In muscle relaxation group it decreased from 90.5 percent to 86.1 percent at second day. In mental imagery group, it decreased from 89.2 percent at first day to 84.9 percent at second day. Table 2 based on ANOVA test's results show that there wasn't significant difference between mean of pain severity at first day before and after dressing

with mean of pain severity before dressing at second day ( $P>0.05$ ). In addition, results showed significant statistical difference in mean of pain severity after dressing at second day between control group with muscle relaxation group ( $P=0.02$ ) and mental imaginary group ( $P=0.03$ ). This table demonstrate there are no significant difference between relaxation group with mental imaginary group ( $P=0.8$ ).

**Table 1. Frequency of demographic features and disease data in three groups**

p-value	Mental imaginary group		Muscle relaxation group		Control group		Groups	
	%	N	%	N	%	N	Demographic features	
P=0.99	31.1	14	33.3	15	35.6	16	20-29	Age (years)
	33.3	15	33.3	15	33.3	15	30-39	
	35.6	16	33.3	15	31.1	14	40-45	
P=0.95	14	19	13.3	6	11.1	5	rich	Economic status
	69	93	68.9	31	71.1	32	moderate	
	17	23	17.8	8	17.8	8	poor	
P=0.74	33	44	33.3	15	35.6	16	Under diploma	Education
	38	52	35.6	16	33.3	15	diploma	
	29	39	31.1	14	31.1	14	academic	
P=0.97	55.6	25	57.8	26	57.8	26	40-49	Burn percent
	44.4	20	42.2	19	42.2	19	50-60	

**Table 2. Mean of pain severity in groups at different times**

Pain severity	Control group M±SD	Muscle relaxation group M±SD	Mental imaginary group M±SD	Test	p-value
First day before dressing	90±9.18	90.7±8.56	90.4±8.66	ANOVA	P=0.92
First day after dressing	91±8.1	89±8.57	88.02±8.56	ANOVA	P=0.24
second day before dressing	90±8.18	88.2±8.9	87±9.31	ANOVA	P=0.27
second day after dressing	89±8.08	84.08±8.57	82.8±9.3	ANOVA	P=0.002
Mean of pain severity second day after dressing between relaxation and control group				ANOVA	P=0.02
Mean of pain severity second day after dressing between imaginary and control group				ANOVA	P=0.003
Mean of pain severity second day after dressing between relaxation and imaginary group				ANOVA	P=0.8

**Discussion:** Results founded both muscle relaxation and mental imaginary interventions could decreased pain in second-degree burn patients effectively. This result is similar to a study that concluded muscle relaxation and mental imaginary decreased pain and distress in

women with breast cancer.<sup>17</sup> In the present study, muscle relaxation technic led to decrease in pain and control group patient suffered from more pain. In similar research, researchers concluded that muscle relaxation technic led to decrease in pain severity, Itching and vital signs of

patients suffering from burns, especially second-degree burns and recommended we must use from this complementary methods for pain relief in burn patients.<sup>13</sup> In present study, pain severity of samples in mental imaginary group at second day after dressing was lower than control group. In a similar study found that mental imagery technic, significantly reduce headache and it-related disability in patients with migraine.<sup>18</sup> In this study after using muscle relaxation and mental imaginary interventions, pain severity in burn patients decreased significantly but in control group despite receive routinely measures, pain severity don't was reduced. This founds are approved by other studies.<sup>19</sup>

In a study that carried out to evaluate the effect of guided imagery on pain and anxiety in patients undergoing coronary angiography, the results showed that the guided imagery intervention reduces the level of pain and anxiety before surgery in these patients.<sup>20</sup> In a research that execute to evaluated effect of music on pain severity in burn patients researchers concluded that music affected in anxiety, pain and vital signs of burn patients positively.<sup>21</sup>

The results confirmed both muscle relaxation and mental imaginary interventions could decreased pain in second-degree burn patients effectively. It recommend that Non-pharmacologic interventions such as Muscle relaxation and mental imagery must to be use accompany by medication to pain relief.

**Conclusion:** Both technics resulted in decrease of pain severity in burn patients but mental imagery is more effective. This phrase show importance of Non-pharmacologic interventions to pain relief. In addition, due to lower cost and applicability of these interventions these interventions must be prescribe in burn patients.

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