

Affirmation-Tapping to Reduce Pain Perception and Glutamate Serum Levels of Post-cesarean Patients

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Abstract

Introduction: Affirmation, by praying and positive evaluation accompanied by acupoint stimulation, has been shown to reduce pain in postoperative patients. In other studies, affirmations can reduce chronic pain due to the down-regulation performance of Glutamate receptors. Acupuncture can reduce pain complaints by modulating Glutamate at the spinal level. So it is suspected that affirmation-tapping can reduce post-surgical pain due to modulation of Glutamate; however clinical studies have not been conducted. The aim is to compare the pain perception of postoperative patients given affirmation-tapping therapy with other treatment patients as complementary nursing interventions. This is to see if the modulation of the performance of serum Glutamate levels is different from other treatments. **Methods:** We used a randomized post-test control group design that was performed parallel in post-cesarean patients. A sample of 40 patients was divided into four groups (10 in affirmations, 10 in tapping, 10 in affirmation-tapping and 10 in controls). They were obtained through simple random sampling. The instruments included affirmation-tapping guides, Elisa kits and McGill Melzack Pain's short questionnaire form (MPQ-sf). The independent variable was the affirmation-tapping intervention and the dependent variable was the perception of pain and Glutamate serum level. Data were analyzed using simple linear regression. **Results:** The average of Glutamate levels in the Affirmation-tapping treatment group was lower (0.034 ± 0.004) pg/mL and significantly different ($\text{Sig}=0.00$) from other groups (0.056 ± 0.011) pg/mL. **Conclusion:** Affirmation-tapping as a complementary nursing intervention decreases pain perception and Glutamate serum levels in patients post-cesarean section that supports conventional treatment. Affirmation-tapping is recommended as an intervention to overcome pain perception in postoperative nursing patients who support conventional treatment.

Keywords: *affirmation-tapping, complementary, pain, glutamate serum*

Introduction

Untreated acute postoperative pain results in impaired wound healing, even chronic if it is not treated immediately. The activation process of N-Methyl-D Aspartate (NMDA) increases central and peripheral

nerve sensitivity, produces long-term potentiation (LTP), and pain complaints last longer⁽¹⁾. Even though they have been treated, there are still many post-operative pain complaints felt by the client. Severe pain after heart surgery was reported by 28% of patients⁽²⁾, severe pain after thoracic surgery was reported by 25% of patients, even chronic. Moderate post-sectional pain was reported by 48.2% of patients, and pain incidence was 92.7% (IC 95%: 90.9-94.2). Average pain intensity at worst 6.6 ($\text{dp} = 2.2$)⁽³⁾. Complaints of pain produce disturbances in the process of recovery, wound healing⁽¹⁾ and impaired

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productivity⁽⁴⁾. An incomplete pain intervention will reduce a person's quality of life⁽⁵⁾. Affirmation-tapping has been proven successful in overcoming pain complaints, but scientific evidence and linkages with Glutamate have not been studied.

Post-operative pain from moderate to severe is still felt by more than half of all patients who have undergone surgery, despite receiving care as a standard postoperative patient^(6,7). Recommendations for postoperative pain management with drugs and non-drugs^(8,9) and a complementary approach with Affirmation-tapping^(10,11). Postoperative nursing care using the Spiritual Emotion Freedom Technique (SEFT) method has been performed on postoperative patients and it provides good benefits^(10,11). Reading the verses of the Koran as a prayer has also been proven to overcome the pain of post-operative patients⁽¹²⁾. The complementary nursing approach has consistently been in line with nursing care policies, specifically for managing pain. This is still rarely done because of limited scientific support regarding the performance and effectiveness of complementary affirmative nursing interventions^(8,9,13). The aim is to compare the perception of average pain reported by postoperative patients given Affirmation-tapping with other treatments as complementary nursing interventions. It is proven that the performance of Glutamate serum levels is different from how it is in other treatments, where affirmative sentences are used as prayers. They take verses from the Koran and this is still combined with the stimulation of several acupoints simultaneously.

Materials and Methods

This study used a Randomized Controlled Post-test Design group in parallel for all treatment groups. The study sample was a partial postoperative cesarean section taken by simple random sampling of 40 respondents⁽¹⁴⁾. Random assignments were then carried out so there were ten respondents for each affirmation, tapping, affirmation-tapping, and control group+. The criteria for inclusion in the sample were: 1) Moslem patients after cesarean section who volunteered to participate after getting an explanation and 2) they were recruited on the first day of the 4th hour after surgery, 3) they were 18-41 years old, 4) they did not have complications outside of pregnancy and childbirth and 5) they receive anti-pain

treatment according to hospital standards

The independent variable was affirmation-tapping intervention and the dependent variable was pain perception and Glutamate level. Data collection tools were 1) affirmation-tapping procedure guidelines, 2) McGill Melzack's short pain questionnaire with permission from Prof. Melzack, with adjusted language^(15,16) and 3) equipment used to take venous blood specimens⁽¹⁷⁾. Glutamate levels were analyzed using the ELISA kit⁽¹⁸⁾, conducted by the Institute of Tropical Diseases (ITD) Airlangga University. Prepare all reagents, standard solutions, and samples as instructed. Bring all reagents to room temperature before use. The assay is performed at room temperature. Determine the number of strips required for the assay. Insert the strips in the frames for use. The unused strips should be stored at 2-8 °C. Add 50µl standard to standard well. Note: Don't add antibody to a standard well because the standard solution contains a biotinylated antibody. Add 40µl of sample to sample wells and then add 10µl of anti-GLM antibody to sample wells, then add 50µl of streptavidin-HRP to sample wells and standard wells (Not blank control well). Mix well. Cover the plate with a sealer. Incubate 60 minutes at 37 °C. Remove the sealer and wash the plate 5 times with wash buffer. Soak wells with at least 0.35 ml wash buffer for 30 seconds to 1 minute for each wash. For automated washing, aspirate all wells and wash 5 times with wash buffer, overfilling wells with wash buffer. Blot the plate onto paper towels or other absorbent material. Add 50µl substrate solution A to each well and then add 50µl substrate solution B to each well. Incubate plate covered with a new sealer for 10 minutes at 37 °C in the dark. Add 50µl Stop Solution to each well, the blue color will change into yellow immediately. Determine the optical density (OD value) of each well immediately using a microplate reader set to 450 nm within 10 minutes after adding the stop solution⁽¹⁸⁾. All groups received standard treatment, with the affirmation treatment group getting additional affirmations, praying with the Qur'an surah Al-Fatihah for 10 minutes. The tapping group added knock for 5 minutes while the "affirmation-tapping" group added affirmations and knocked at the same time for 10 minutes. The control group only received standard care four hours after the end of anesthesia. The distance between treatments was 8 hours, and they were given four treatments. Then, 10 minutes after the last treatment, pain perception data were collected using MPQ-sf.

Venous blood specimens are then taken for examination of Glutamate levels using the ELISA method. Data analysis was directed to examine the different effects of Glutamate on pain perception for affirmation. Data processing of pain perception and Gutamate from four groups was carried out through simple linear regression with a significance level of 95%.

were listed in Table 1. The mean age was 32.1 (± 5.8) years. Bodyweight was 56.5 (± 7.8) kg and height was 164.5 (± 8.8) cm. Systolic pressure is 127.9 (± 4.3) mmHg, diastolic pressure is 84.0 (± 7.0) mmHg. The pulse frequency is 88.2 (± 0.6) bpm, the respiratory frequency is 21.2 (± 2.1) per minute. All data are normally distributed (-2 <Skewness Ratio <2), so comparative analysis can be carried out between groups.

Findings

The characteristics of participants from all groups

Table 1. The characteristics of respondent (n=40)

Variables	Group							
	Statement (No.10)		Tapping (n=10)		Affirmation-tapping (n=10)		Control+ (n=10)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age (year)	32.1	19.12	31.1	6.4	31.4	5.1	29.3	6.1
Weight (kg)	55.7	4.9	54.4	7.9	56.5	7.8	52.9	6.4
Systolic	126.8	4.7	127.9	4.3	125.9	6.5	125.5	5.0
Diastolic	79.6	1.3	78.6	5.1	81.5	6.9	84.0	7.0
Pulse	88.2	0.6	88.2	3.8	84.6	3.8	87.2	2.7
Respiratory	21.0	3.0	20.8	2.5	20.4	2.1	21.2	2.1

SD = Standard Deviation

Table 2. Pain perception and glutamate serum levels (pg/mL) per group (n=40)

Variables	Group							
	Statement (No.10)		Tapping (n=10)		Affirmation-tapping (n=10)		Control + (n=10)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pain perception	3.927	0.586	4.795	0.598	3.197	0.835	4.919	0.522
Glutamate	0.042	0.001	0.040	0.001	0.034	0.004	0.056	0.011

SD = Standard Deviation

Table 2, it can be seen that the highest average pain perception was found in the control group+ (4.919±0.522) and the lowest in the “affirmation-tapping” group (3.197±0.835). Glutamate levels were highest in the control group+ (0.056±0.011) pg / mL and lowest in the Affirmation-tapping group (0.034±0.004) pg / mL. To test the effects of pain perception treatment related to serum Glutamate levels, a simple linear regression analysis was performed. Regression requirements ie normality of residual data normally distributed, fulfilled (Sig residual data = 0.072 >0.05). The result of simple linear regression analysis obtained Sig=0.00 (<0.05) means that there is an influence between Glutamate on pain perception due to affirmation-tapping treatment.

Discussion

Data processing proves that affirmation-tapping reduces the patient’s pain perception after a cesarean. Clinical trial studies conducted in hospitals prove that affirmation-tapping as a complementary approach has been able to reduce patient pain in accordance with integrative treatment recommendations for the treatment of postoperative pain patients (19). Research related to affirmation-tapping also helps reduce the pain of dysmenorrhoea in adolescents⁽²⁰⁾.

Research conducted by Wijiyanti has also proven the affirmation-tapping approach can reduce pain after a cesarean section⁽¹¹⁾. The affirmation-tapping approach has also been shown to reduce the pain suffered by cancer patients⁽²¹⁾, control complaints of fibromyalgia pain⁽²²⁾ and control pain and depression complaints of war veterans^(12,23).

Biological perception of pain is the result of the accumulation of stimulus and response performance that is consciously or unconsciously controlled by the brain, especially the forebrain and central nervous system including the spinal cord⁽²⁴⁻²⁶⁾. By utilizing descendent pain control pathways, the course of stimulus and pain response can be controlled using neurotransmitter media through the forebrain and amygdaloid brain^(27,28). Empowerment of the forebrain by affirmation can eliminate the default-inhibition (inhibition of functional work as a necessity) of the amygdaloid⁽²⁷⁾ to activate the descendent pathway that blocks pain signals that lead to the spinal cord. This means that the transduction of pain through the ascendent pathway to the central

nerve and brain can be prevented⁽²⁹⁾. Praying with attention, focusing and thinking about Allah SWT followed by acupoint stimulation through affirmation-tapping will inhibit Glutamate⁽³⁰⁾. This will modulate their pain perception as a result of the inhibition of pain transduction⁽³²⁾.

Affirmations using the Surah Al-Fatihah prayers that are sincerely and sincerely hope Allah’s help can multiply empowerment in the forebrain and amygdaloid, improve its performance so that the pain control function becomes better and more effective^(12,29,33,34). Tapping as a form of acupoint stimulation can inhibit the transduction of pain from various areas of the body to the center, thereby stimulating pain from surgical wounds can be inhibited. As a result, the participants did not suffer pain⁽³⁰⁾.

Affirmation-tapping lowers Glutamate levels, thereby strengthening the performance of descendent pain inhibitors, thereby inhibiting peripheral to central pain transduction, thereby overcoming pain complaints⁽³⁵⁻³⁷⁾. The limitation of this study is that there is no screening for diabetic participants. Affirmations are made using prayers from the Surah Al-Fatihah followed by knocking on several acupoints to reduce postoperative pain complaints. Affirmation-tapping interventions can be continued and recommended by nurses who have been trained and licensed to do so.

Conclusion

Participant pain complaints were lowest in the affirmation-tapping group with low Glutamate levels, this was very different from the control group. Affirmation-tapping has been shown to have a therapeutic effect in the context of overcoming complaints of pain after a cesarean section. The novelty of this study is the affirmation-tapping performance of reducing pain complaints associated with Glutamate. Affirmation-tapping with Al-Fatihah prayer can be recommended to overcome pain complaints as a nursing approach.

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