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*Original Article*

# Effects of therapeutic touch on the vital signs of patients before coronary artery bypass graft surgery

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## Abstract

**BACKGROUND:** Currently healthy heart word considered to be the objective of community health applications in many countries of the world because cardiovascular diseases are the most important factor in mortality of humans, worldwide. Coronary artery bypass graft surgery is one of the most common surgery procedures for these patients. The purpose of this study is to assess the impact of therapeutic touch on medical vital signs of patients before coronary artery bypass graft surgery.

**METHODS:** The present study is a clinical trial with 44 samples that were selected by easy sampling method and based on two separate lists of random numbers for both men and women; they were divided into two groups. In the therapeutic touch group, intervention therapy was applied on patents for 20 minutes. Data was analyzed using descriptive and inferential statistics.

**RESULTS:** Test results showed that there was a significant difference between the mean pulse rate before and after intervention in both groups ($p < 0.001$). Results also showed that there was a significant difference between the average number of breathing before and after intervention in both groups ($p < 0.001$).

**CONCLUSIONS:** Considering the effects of therapeutic touch therapy as a safe and effective intervention on the patients which were revealed in this study, this technique can be used as a simple, cheap and applicable technique in all health care centers to help these patients.

**KEY WORDS:** Blood pressure, coronary artery bypass, pulse, therapeutic touch.

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Currently healthy heart word considered to be the objective of community health applications in many countries of the world because cardiovascular diseases are the most important factor in mortality of humans, worldwide.[1]

Cardiovascular diseases are one of the most dangerous ones and are the main reason of death among Americans [2] and from 1990 are the first reasons of death among Americans.[3] So that more than 70 million Americans have one or more cardiovascular disease. It is also said that from each 4 person in America one has a kind of cardiovascular disease and deaths due to these diseases are 60% of all deaths that happen.[3] Unfortunately in our country the rate of occurrence of these diseases is increasing and the age of patients is decreasing. Currently we face so many cardiovascular patients.[1]

On the other hand, advanced technology and modern complicated medical treatments and also the busy nature of nurses' works and time limitations for building a relation between nurses and patients, cause patients and care providers to become distanced so health care environments have become stressful for pa-

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tients.[4] Also in previous studies on these patients, it is indicated that pain, anxiety and hesitation are their main experiments; and anxiety is the core of all problems. Also other studies have shown that stress and anxiety can cause damaging effects on the healing process after heart surgery.[5,6] It is witnessed that high level of anxiety can increase chest pain, breathing disorder, myocardial ischemia and the chance of heart attack. It can also increase blood pressure which leads to high risk of bleeding after heart surgery.[7,8]

Halpin and Barnett also mentioned that depression and pessimism before elective coronary artery bypass graft surgery can cause postoperative complications like heart attack and also can increase the duration of hospitalization and usage of mechanical ventilator after surgery.[9] In fact changes in biological signs can be physiologic signs of anxiety.[10]

Also other previous studies showed that there is a relation between anxiety before coronary artery bypass graft surgery and depression, slow recovery and pain after surgery and low level of anxiety before surgery could lead to recovery after surgery within 6 months.[11] So one of the nurses' duties must be reducing patients' anxiety and stress.[7]

It must be mentioned that reduction of anxiety would be identified by these symptoms: the patient himself admit that his anxiety is decreased and show no physical evidence of anxiety like moving the hands, frowning, having dilated pupils, increase of sweating, and also increase of blood pressure and pulse rate and number of breathes;[12] because body's respond toward relaxation could be modified by physiological signs like blood pressure, pulse rate and number of breathes.[13] In relaxed position blood pressure and pulse rate would be decreased and breathing would be deeper and slower.[14]

Therefore nurses have an important role to prepare patients, emotional and psychologically, before the surgery.[7] There are many methods, including therapeutic touch which is a complementary medical treatment, to achieve this goal and nurses can use them to help their patients control their situations.

Touch therapy was introduced to nursing society in 1970 by Dolores Krieger, a nursing professor on America.[15] In fact this method, which is a science based nursing intervention,[16] has been used by professional nurses to protect their patients and make them feel comfortable for more than 25 years[13] and has raised the quality of nursing health care.

Also studies in Iran have conducted to assess the effect of touch therapy on children's stress before intravenous injection,[17] colic pain in infants,[18] women's back pian,[19] cardiac dysrhythmic in patients under cardiac catheterization[20] and stress rate in toddlers.[21]

In the North American Nursing Diagnosis Association, "energy field disturbance" has been recorded as a standard nursing diagnosis and professional associations like American Nurses Association, The National League for Nurses and American Holistic Nurses Association, support touch therapy as a "nursing intervention"[22] and it must be noted that touch therapy has low expenses and doesn't need special equipments except for nurse's hands.[23]

This study can cause nurses to have deeper and more scientific look at patients' anxiety, especially heart patients. Therefore, considering the increasing list of patients who are waiting for coronary artery bypass graft surgery, and considering these patients' high level of anxiety before the heart surgery which can cause changes in their vital signs while having steady vital sign in their normal range is very important before heart surgery, and also considering that applying nonmedical interventions is nurses' responsibility and this kind of treatment shows the art of nursing that along with science must support patients with more effective and quantitative health care and more important can bond a deeper relationship between patient and nurse, so the researcher decided to assess the effect of therapeutic touch on vital signs of patients before coronary artery bypass graft surgery.

## Methods

This is a clinical trial that study the effect of therapeutic touch, the independent variable, on vital signs, dependent variable. Samples were selected using simple sampling and from patients who were candidate for coronary artery bypass graft surgery in Namazi hospital of Shiraz in 1386 and also had inclusion criteria (including being aware of their sickness, willingness to participate in the study, not being mentally retarded, not being blind or deaf, being conscious and based on physician's diagnosis not having any active mental disorder). Then based on two separate random numbers list for male and female patients, they were divided into two groups of intervention and control. Based on all the information and statistics professionals' suggestions, each group contained 2 patients.

First demographic data like gender, age, educational status, marital status and history of anxiety and nervous diseases were extracted using a questionnaire and their vital signs were recorded. All patients' blood pressure was measured using a portable analog manometer which was calibrated using a mercury manometer. Also number of breathes and heart beats was counted in a minute and recorded; and all patients' temperature was measured through their mouths using a mercury thermometer.

It must be noted that for having a blind study vital signs were recorded by researcher's assistant and the researcher applied all 4 steps of therapeutic touch i.e. concentration, studying patient's energy areas, balancing patient's energy areas and finally studying energy areas again on patients of intervention group. It must be noted that for learning therapeutic touch techniques the researcher spend some training sessions with second supervising professor, who has enough skill in this field and has conducted some researches and thesis in this area, and after getting prepared, physically and mentally, started special concentrating exercises and then did single and double exercises for a year and half under professor's supervision. Then researcher started working on healthy people and then on different patients from different wards and after learning this intervention completely and passing practical exam successfully, researcher started working on this study's samples (this intervention was confirmed by ethical committee of Isfahan University of Medical Sciences).

In the concentration step which is the first and most important step of the procedure conscious concentration is necessary. During this step the healer must relax his mine and make himself ready, emotionally, mentally and physically, to communicate with his patient. First her attention is toward synchronizing her own energy areas and then toward balancing patient's energy areas and this peace and attention must be kept until the end of the procedure. In the studying step, while keeping her peace and concentration, the researcher moved her hands over patient's skin from distance of 2-6 inches to gain some information about patient's energy areas. This studying was started from patient's head and continued to the feet and repeated in the front and back part. The in the intervention step to review the energy areas, the researcher used the obtained information and with slow symmetrical moving of hands on the energy fields of patient, she removed the unwanted energies and made patient's energy fields smooth, clear and soft and rebalanced them again. At the end the researcher studied patient's energy areas again and compared the results to the primary results. And if more intervention was needed, the researcher continued the procedure, otherwise the researcher reached the point that she felt no imbalance anymore and the intervention must be ended. It must be noted that the intervention was applied only once and for 20 minutes and afterward researcher's assistant measured vital signs again. In the control group no intervention was applied and vital signs were measured twice in a 20 minute interval by researcher's assistant. Exclusion criteria for this study were unwillingness for participating in the study or having any kind of problem that made the patient unable to continue participating. No patient was excluded from this study. At the end, data was analyzed using SPSS software.

## Results

Results of the repeated measure analysis of variance showed that in the intervention group the mean (SD) of pulse rate before intervention was 79.00 (9.95) and after intervention was 72.36 (9.33); this rate for the control group was 81.18 (8.30) at the beginning of the study and 81.36 (8.10) after 20 minutes. These results show that there was a meaningful difference between the pulse rate before and after the intervention of both groups ($p = 0.04$).

Results of the repeated measure analysis of variance showed that in the intervention group the mean (SD) of systolic blood pressure was 131.82 (15.93) before the intervention and 119.09 (16.38) after the intervention; this rate for the control group was 130.91 (17.43) at the beginning of the study and 131.14 (17.72) after 20 minutes. These results show that there was no significant difference between the mean of systolic blood pressure of both groups ($p = 0.276$).

Results of the repeated measure analysis of variance showed that in the intervention group the mean (SD) of diastolic blood pressure was 82.05 (14.85) before the intervention and 74.77 (13.58) after the intervention; this rate for the control group was 84.09 (10.98) at the beginning of the study and 84.09 (10.98) after 20 minutes. These results show that there was no meaningful difference between the mean of diastolic blood pressure before and after the intervention in both groups ($p = 0.141$).

Results of the repeated measure analysis of variance showed that in the intervention group the mean (SD) of breathing rate was 21.64 (2.11) before the intervention and 18.45 (1.95) after the intervention; this rate for the control group was 21.36 (1.79) at the beginning of the study and 21.36 (1.79) after 20 minutes. These results show that there was a meaningful difference between the mean of breathing rate before and after the intervention in both groups ($p = 0.02$).

Results of the repeated measure analysis of variance showed that in the intervention group the mean (SD) of body temperature was 36.85 (0.38) before the intervention and 36.85 (0.38) after the intervention; this rate for the control group was 36.95 (0.32) at the beginning of the study and 36.95 (0.325) after 20 minutes. These results show that there was no meaningful difference between the mean of body temperature before and after the intervention in both groups ($p = 0.359$).

Results of Kolmogorov-Smirnov test showed that variances of stress variable were distributed normally so parametric tests were acceptable.

## Discussion

Results of the present clinical trial show the positive effect of therapeutic touch on significant reduction of number of pulses and breathes and also systolic and diastolic blood pressure in patients who were candidate for coronary artery bypass graft surgery. Though, their blood pressure and their body temperature didn't change significantly.

The results of Post-White et al study[24] and Ravani-poor study[17] regarding the reduction of number of pulses in intervention group after therapeutic touch confirm the results of the present study.

In Salimi study,[21] which was on the effect of touch therapy on the stress rate in toddlers who were hospitalized in pediatrics wards, results showed that this intervention has been effective in reducing the number of pulses, which is the same as the present study. Only in the Cox study,[25] which was about the effect of therapeutic touch on physiologic and psychodynamic responses of patients who were hospitalized in ICUs, therapeutic touch had no effect on the number of pulses of samples.

Considering the changes in systolic and diastolic blood pressure, although these changes weren't significant but systolic blood pressure reduced for about 10-20 mmHg and diastolic blood pressure reduced for about 10-15 mmHg. One of the reasons that these differences weren't significant can be that in this study data was recorded after 20 minutes; maybe this time is enough for seeing parasympathetic responses but is not enough for seeing responses of endocrines like reduction in secretion of cortisol which lead to delayed reduction of blood pressure.

Similar to the present results, results of Angel et al study and Cox study,[25] which was about the effect of therapeutic touch on physiologic and psychodynamic responses of patients in ICUs, showed that therapeutic touch had no significant effect on systolic and diastolic blood pressure of patients after intervention.

But in Post-White et al study,[24] Ravani-poor study,[17] and Salimi study[21] reduction of systolic and diastolic blood pressure was significant in the intervention group in comparison with the control group.

Also the results of Post-White et al study,[24] Jonasen study,[26] Ravani-poor study[17] and Salimi study[21] were agreed with the preset results regarding reduction of number of breathes after intervention and only Cox study,[25] which was about physiologic and psychodynamic responses of patients in ICUs, showed that therapeutic touch had no significant effect on the number of breathes after intervention.

Also the results of Angel et al study regarding responses to therapeutic touch were agreed with the present results and showed that body temperature (oral measurement) didn't change right after intervention but it increased gradually after intervention.

Also in Ravani-poor study there was no significant difference between body temperature measured orally in the intervention group and the control group.[17] Results of Salimi[21] study showed that there was no significant difference between body temperature, which was measured by putting thermometer beneath underarm of children, in the intervention group and the control group.

Since, besides being sick, being hospitalized especially for heart surgery, modern complicated treatments and being in intensive care environments can increase stress and change vital signs of patients and these changes can cause many problems in patients' lives; it is really important to maintain vital signs in their normal range before heart surgery. Also considering that non medical interventions are nurses' responsibilities and detecting therapeutic touch interventions as safe and effective, this easy, cheap and executable technique can be taught to nurses in all medical centers. Regarding achieved results and side effects of drugs and their costs, therapeutic touch, which has no side effect and cost, can be taught to nurses to be used in different situations.

In conclusion it must be noted that considering professional structure of therapeutic touch, it is proper for being used in many different situations; because we as nurses must enhance our ability to help patients and be able to solve their problems in different situations.

The Authors declare that have no conflict of interest in this study and ethical committee approved the study.

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