

Comparison of the effect of sublingual nitroglycerin with Tellington massage on the intensity of unstable angina pectoris pain

Abstract

The primary goal of medical treatment of cardiac angina is to create a balance between the oxygen supply and demand of the heart muscle. The purpose of this study is to investigate the effect of sublingual nitroglycerin on the severity of chest pain in patients with unstable angina during the intervention of anterior chest massage using the Tellington method.

This research was a semi-experimental study that was conducted on 64 patients with unstable angina. The samples were divided into two groups, experimental and control. In the control group, when pain occurred, the usual intervention of the department was performed. However, in the test group, in addition to the usual measures, nitroglycerin was given sublingually and then massaged. In both groups, before and 5 minutes after the interventions, pain intensity was measured by visual pain measurement scale. The findings showed that after the intervention, the changes in pain intensity increased in the control group, which indicates that the intensity of pain increased significantly after the usual procedure compared to before. ($P < 0.001$). In the test group, the intensity of pain decreased, which indicates that the intensity of pain decreased significantly after the intervention compared to before. ($P < 0.001$). The results of this research show that chest massage by giving nitroglycerin reduces the intensity of chest pain in patients with unstable angina pectoris.

Keywords: nitroglycerin, unstable angina pectoris, intensity of chest pain, tellington massage, Cardiovascular diseases, treatment.

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Introduction

Cardiovascular diseases are among the deadly and increasing diseases of industrial societies that can affect the personal and social lives of people, especially the elderly. It is estimated that by 2020, cardiovascular diseases will be the leading diseases worldwide that reduce the useful performance of people due to disability and premature death. Meanwhile, ischemic heart diseases¹ or coronary artery diseases² such as unstable angina pectoris and acute myocardial infarction are important health-threatening cases [1].

Ischemic heart disease causes death and disability more than any other disease and imposes many economic costs on society [2]. IHD causes complications such as disability and reduced productivity, and in this sense, it is the source of many economic losses for society [3]. In the United States, among 12 million people with IHD, about 6 million people have angina [2]. In Iran, cardiovascular diseases are the most common cause of death and account for about 46% of deaths, every year about 3.6 million people die only in hospitals covered by the Ministry of Health, Treatment and Medical Education due to these diseases are hospitalized [4]. Statistics and figures show that ischemic heart diseases in Semnan province are also in the first category of mortality and account for 43% of the deaths of patients in the province [5].

Unstable angina pectoris is a form of ischemic heart disease that due to the narrowing of the coronary arteries, the supply of oxygen to the heart decreases so that it does not respond to

the metabolic needs of the myocardium [2]. People with unstable angina are more at risk of death than other people due to anxiety and complications caused by pain [6-8]. The occurrence of pain and discomfort in the chest can indicate a decrease in blood flow in the myocardial muscle, which, if not taken into account, can lead to more damage to the heart muscle, heart failure, arrhythmia, cardiogenic shock, and death [3]. Chest pain and discomfort are the main clinical symptom of unstable angina, which is typically felt in the area below the sternum or sometimes in the epigastric region, and usually spreads to the neck, left shoulder, and left arm. Unstable angina pain is accompanied by cold sweat and nausea and is aggravated by activity and relieved by rest [9].

The feeling of pain in patients with ischemic heart disease is expressed as a feeling of tightness in the chest with or without spreading to the left and right hand, a feeling of tightness and suffocation in the neck, a feeling of shortness of breath and difficulty, epigastric pain, pain in the lower jaw [10, 11].

Unstable angina pain is considered an important stressor for the patient, which can put the patient in a vicious cycle including pain and increased oxygen demand because this pain causes an increase in catecholamines by stimulating the sympathetic nervous system, which results in An increase in heart rate and heart contraction power, and in general, increases the myocardial oxygen demand and increases the heart load [6].

¹ Ischemic Heart Disease(IHD)

² Coronary Arterial Disease(CAD)

Among the duties of nursing towards a patient with pain, we can mention the investigation of the time of onset of pain, the location of pain, the duration of pain, and performing interventions to relieve pain. In addition, the nurse should also evaluate the behavioral signs of pain in the patient, such as crying, frowning, increasing vital signs, and changes in the patient's eating and sleeping [12]. In caring for a patient with chest pain, the nurse's role includes the following: asking the patient about the frequency of chest pain, teaching the patient and his family about the disease, treatment methods, and its goals, and trying to reduce the patient's anxiety and pain with Performing measures such as music therapy, diverting thoughts, massage therapy, education, etc. [13, 14]. According to these materials, the nurse can use independent and uncomplicated palliative measures to reduce the chest pain of a patient with unstable angina pectoris in the control and observation phase. There are many measures to relieve the pain of patients, and the use of less complicated and simple methods along with pharmaceutical methods is more important. The pain caused by unstable angina can be controlled with a variety of pharmacological and non-pharmacological measures. Some of these measures include such things as prescribing nitroglycerin, beta-blockers, calcium blockers, aspirin, heparin, narcotic drugs, complete rest, oxygen administration, creating a calm environment, and in some cases recommending deep breathing [6, 15]. Blanchard, citing Gatlin and Schulmeister, states that the best measure suggested to control the symptoms of heart pain is to use both pharmacological and non-pharmacological measures. Today, for various reasons, the use of traditional medicinal measures in hospital departments is more common than non-medicinal measures such as changing the patient's condition, thermal measures, massage therapy, aromatherapy, and meditation [16]. Drug methods that can usually be referred to for the relief of pain caused by unstable angina include intravenous or sublingual nitroglycerin and narcotic drugs, especially morphine and intravenous pethidine. Each of these drugs, in addition to the soothing effects, in turn has side effects such as headache, dizziness and syncope, blood pressure drop, respiratory depression, and bradycardia [2, 8, 17, 18]. In dealing with patients' pain, pain control with non-invasive or non-pharmacological methods is of particular importance. Non-pharmacological interventions are very economical and cost-effective and will provide pain control without the occurrence of side effects, which are seen with drug regimens. By using alternative treatments before, during, or after painful procedures, these methods can be controlled by the nurse or the patient [19]. One of these non-drug interventions to reduce pain is the use of different massage methods [20]. There are many definitions of massage, one of these definitions by Holley, quoting Goodla in 1926, is stated as follows: Massage

is a scientific way of treating some diseases by applying external manipulation on the soft tissues of the body. Goes [21]. Another definition indicates that massage; the contact of the hands with a part of the body is accompanied by rubbing and pressure to reduce pain and create relaxation in the person [22]. Massage was introduced about a century ago as a therapeutic intervention to care for patients. More than 400 years BC, the Chinese used massage as a physical therapy [23]. Massage probably started when cavemen rubbed their hands together. Although the basic principles of Chinese medicine have been lost, massage is thought to have evolved like other medical practices. As one of the famous doctors of Greece, Aselpides accepted the use of this art to such an extent that although he used other treatment methods less, he continued to use massage to solve the problems of his patients. The Greeks built baths for exercise, massage, and washing, which were useful, but these baths were only used by people who had lost their health. Until 1980, massage therapy as a new profession developed rapidly, and finally a national organization called the American Massage Therapy Association was established, which currently continues to work to consider massage as a therapeutic profession [24]. Massage has many effects, for example, through massage, parameters that indicate the activity of the sympathetic nervous system, such as heart rate, breathing rate, and blood pressure decrease [25, 26]. Based on research by Guts, a massage is considered an effective and acceptable treatment for muscle pains, which is used to relieve pain, edema, muscle spasms, and movement restrictions [27]. Massage also affects muscle tone and causes general muscle relaxation. The results of a study showed that pain after heart surgery is reduced by massage [28]. Also, Pope and his colleagues showed in 1992 that the trust of patients in using massage as a continuous treatment is more than other methods [29].

Various types of massage such as Swedish massage (effleurage, petrissage, and friction), neuro-muscular massage, deep tissue massage, and sports massage have been mentioned in the studies [26]. One of the new methods of providing massage is Tellington massage [30]. Tellington massage was first used in 1978 by Mrs. Linda Tellington Jones to tame and train animals such as horses, dogs, and cats. Five years later, in 1983, this method was also used on humans [30]. One of the advantages of this simple learning method is that it is easy to use, there is no need to learn the anatomy of the body, and there is no need for additional equipment. The applications of Tellington massage can be mentioned as reducing stress, reducing neck, leg, back, and migraine pain, reducing depression, controlling arthritis pain, improving quality of life, and deep interpersonal communication [30].

As a member of the health team, the nurse can play a key role in pain management. Because he is the person who spends the

most time with the patient, and in this regard, he is responsible for evaluating pain, implementing palliative measures such as prescribing painkillers or non-pharmacological methods of pain control, and evaluating their effects. However, various researches show that, unfortunately, the issue of pain relief using non-pharmacological methods has not been taken as seriously as it should be by nurses, and most of the patients in hospitals still suffer from severe pain. In a study conducted in 1999 in the same field, 58% of patients stated that they experienced excruciating pain and that nurses gave them less than the required amount of medicine. Also, researchers' experiences show that in many situations of pain, a proper professional approach is not taken by nurses to control and manage pain [31]. In the meantime, the use of non-drug pain relief methods such as massage skills allows nurses to have therapeutic contact with patients and create a meaningful relationship between the patient and the nurse. This method requires minimal training for the patient's caregivers and is cheap and low-cost. The benefits of using massage as a soothing method include: relaxing the body, reducing stress, eliminating weakness, improving sleep, and reducing pain due to the production of endogenous beta-endorphin [25]. Considering what has been said about the side effects of painkillers on the one hand and the potential benefits of non-pharmacological methods of pain control on the other hand, as well as the importance of promoting professional independence in the implementation of independent nursing measures and the nurse's responsibility in ensuring the comfort of the patient, it seems that massage before the shelf Tellington's chest can be a good way to control the pain of patients with unstable angina pectoris. Of course, it should be mentioned that several studies have been conducted regarding the effect of massage on chest pains, in which, in addition to the front part of the chest, massage has also been applied to other areas of the body such as the shoulders and back, which the researcher believes It has been able to bring some degree of tension to the patient due to the change of position and increase in heart rate. In a study, Wendler investigated the effect of Tellington's massage on healthy people who were waiting for angiocyte injection. The results of this research showed that the blood pressure and heart rate of the studied subjects decreased significantly, but there was no significant difference in their anxiety and pain levels between the control and test groups [32]. Mrs. Aghaei also found that the effect of back, chest, and shoulder massage on chest pain caused by unstable angina in people undergoing massage was reduced than in people who received massage [33]. Burr and his colleagues in 2009 also investigated the effect of Swedish massage on anxiety, pain, and stress after heart surgery. The result of this research showed that massage significantly reduced the level of pain, stress, and anxiety in the test group

compared to the control group patients [34]. During the research that Albert and his colleagues conducted under the title of the effect of massage by rubbing and vibration method after heart surgery, they concluded that massage is a suitable method in improving mood, depression, anxiety, pain, and the physiological state of the body [35]. In a semi-experimental study, Abolhasani and his colleagues looked at the effect of back massage and voice replacement on chest pain in patients hospitalized in the cardiac intensive care unit and concluded that performing back massage and voice replacement is an effective way to reduce the pain of these patients [36]. In addition, Hutton and his colleagues in 2001 a hospital in England in a comparative study investigated the effect of simple foot massage on patients after CABG surgery and concluded that foot massage is effective in reducing the pain of these patients [37]. What is clear is that among these studies, Tellington's method has been discussed less and only one study has been conducted regarding the effect of this massage method, and that too on non-cardiac pain [32].

In 2008, Parlak Gurol and his colleagues conducted research in a hospital in Turkey titled "Reducing the level of pain, itching, and anxiety using massage therapy in adult patients who suffered burns". In addition, its results showed that massage therapy reduces the amount of pain, anxiety, and itching in people [38]. Therefore, according to the researcher's experience, when pain occurs, there is a tendency to support the pain area; the purpose of this study is to determine the effect of massage. The front of the chest depends on the intensity of chest pain in patients with unstable angina pectoris, so it can be introduced as a low-cost and low-stress measure to ensure the patient's comfort from the nurse's side.

Materials and methods

The current research is a randomized clinical trial with a control group, in which 64 patients with unstable angina were studied in the cardiac intensive care unit of Fatemeh Semnan Educational-Therapeutic Hospital. This study was conducted after the hospitalization of patients with unstable angina pectoris and the confirmation of this diagnosis by the attending physician. In this study, the research community consisted of patients who, with the diagnosis of unstable angina pectoris, were treated and recovered in the cardiac intensive care unit. They were admitted to Fatemeh Hospital in Semnan, it should be noted that these patients had normal cardiac enzymes.

In this research, to obtain a sufficient sample size, according to the opinion of the statistical consultant, first a preliminary study was conducted on 20 patients with unstable angina pectoris, for 10 of the patients' massage by the Tellington method (test group) and for the other 10 the usual treatment procedures (control group) were done. Then, the average and standard deviation of pain intensity reduction in both groups were calculated, in the case group, the average and standard

deviation of pain intensity reduction was 2.15 ± 1.94 , and in the control group, the average and standard deviation of pain intensity reduction was 1.03 ± 1.4 . Therefore, with 99% confidence and 95% power, the volume of samples was

$$\frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 (S_1^2 + S_2^2)}{(X_1 - X_2)}$$

estimated from $(N = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 (S_1^2 + S_2^2)}{(X_1 - X_2)})$, 25 for each group, and due to the use of a random block design, 32 patients were examined in each group. The samples were selected in a purposeful and available manner, but the allocation of samples to be placed in the test or control group was done randomly, and to remove the bias caused by age or gender, the blocked random sampling method was used. In this way, to sample the researcher and the collaborator, he went to Fatemeh Semnan educational-therapeutic hospital daily in different shifts, and after studying the patients' files, in case of pain; he selected those who had the necessary conditions to participate in the research. Using a lottery, they were randomly placed in one of the control or test groups. Sampling continued until the required ceiling was reached and it lasted about 4 months. The criteria for entering the study were considered as the conditions for selecting research units: having full consciousness, the ability to communicate with others, the absence of a history of damage or trauma (caused by surgery or other factors) in the region of the chest and patients when entering the study nitroglycerin They did not receive an IV. Exclusion criteria in this study are drug addiction patients, patients with neuropathy (diabetes, etc.), patients with dangerous arrhythmias, patients who received painkillers in the last hour, patients with chest injuries, and patients with decreased levels. They were conscious and excluded from the study. The research units were randomly placed in two control and test groups. In this research, the independent variable was Tellington massage and the dependent variable was chest pain intensity. In this research, in order to eliminate the confounding effect of the gender and age variables of the research units, a randomized block design was used. In terms of age, the research units were in two ranges between 30 and 60 years and above 60 years. To homogenize in terms of drug prescriptions, one of the conditions for accepting the samples was that the drugs effective on pain (sedatives, anti-anxiety, etc.) were received in terms of time and amount in both the test and control groups. For both test and control groups, before chest pain occurred, the purpose and method of conducting the research and how to determine the amount of pain using the VAS³ scale were explained by the researcher or fellow therapists. Determining the amount of chest pain in both groups by performing massage using the Tellington method in the test group was done by a research associate to minimize the

bias caused by the researcher's judgment. The research partner was permanently selected from the personnel in the cardiac intensive care unit. Before conducting the research, this person received the necessary training from the researcher on how to determine the intensity of pain in the control and test groups and how to perform massage in the test group. When chest pain occurs, first the pain intensity was measured by the researcher or the research colleague using the VAS scale, and then in two groups, the patient was made to sit in a semi-sitting position at an angle of 30 degrees, and both groups were given the same amount (2 liters) of oxygen. It was given through the nose and it was explained to the patient in both groups that during the massage or the usual treatment procedure, they should avoid asking any questions or talking about a specific topic, and the patient's questions will be answered at the end of the work. Then, in the test group, a sublingual tablet of nitroglycerin was given to the patient, and then the researcher or the therapist immediately performed the Tellington massage. It took 5 minutes. In this research, the masseur was the same sex as the patients. Male patients were massaged by the researcher and female patients by the research colleague. Each patient participated in the research only once. After finishing the massage for 5 minutes in the test group, the pain intensity was measured using the VAS scale, and in the control group, after 5 minutes of taking sublingual nitroglycerin, the pain intensity was measured using the VAS scale. In the end, the obtained results were compared in terms of the reduction in the intensity of chest pain in the test group and the control group.

Data collection method

A program that describes the details of how to conduct a study and gathers accurate and regular information related to the general purpose or specific goals of the questions or hypotheses of the study. The data collection steps in each study are specific to that study and depend on the research design and measurement methods [39]. Patient information was obtained based on filling in the questionnaire and pain measurement by visual pain measurement scale. The questionnaire had two parts, the first part included the patient's demographic characteristics (age, gender) and history of illness or hospitalization in the cardiac intensive care unit. This information was obtained from the patient himself and the patient's file if necessary. The second part included a tool for measuring the intensity of pain in patients, which was used to measure visual acuity. In this study, the content validity measurement method was used. The VAS scale, the validity of which has already been registered, was given to the supervisor, consultant, and statistics consultant, and after correcting, confirming, and making the necessary corrections and final checks, the data collection tool was provided. The tool is it

³ Visual analog scale

stability and uniformity [40]. The VAS instrument is a single-subject scale, so the measurement of internal consistency does not apply to it. Also, in a study by Poli and his colleagues in 2001, they showed that the VAS tool is highly reliable for measuring the intensity of acute pain [41]. Also, in 2002, Gallagher and his colleagues in a study titled "Validity and reliability of VAS tool in patients with acute abdominal pain in the emergency department," concluded that the VAS tool is highly reliable for measuring the intensity of acute pain such as abdominal pain and can be used for also used to measure other acute pains [42].

Data analysis method

The data of this research are quantitative and descriptive and inferential statistics with a significance level of 95% (less than 0.05) were used to analyze the data. Descriptive statistics were used to set up and describe the tables and determine the mean and standard deviation of the data, and inferential statistics were used for the effect of massage using the Tellington method on the pain intensity of the patients. The normality of the data was checked using the Kolmogorov-Spironov test, and to determine the difference in the pain level before and after the intervention in the test group, the paired t-test was used, and to compare the pain intensity of the two tests and control groups, the independent t-test was used.

Results

The information collected in this research is compiled in Tables 1-6. Tables 1 and 2 are related to the demographic information of patients with unstable angina pectoris hospitalized in the special cardiac department. Table 3 shows the frequency distribution of chest pain intensity in both test and control groups before the intervention. Table 4 shows the frequency distribution of chest pain intensity in both test and control groups after the intervention. Table 5 shows the mean and standard deviation and the comparison of the intensity of chest pain in patients with unstable angina before and after the usual procedure (giving sublingual nitroglycerin). Table 6 shows the mean and standard deviation and comparison of chest pain intensity in patients with unstable angina before and after intervention (giving sublingual nitroglycerin and anterior chest massage using the Tellington method).

Table 1 shows that the number of people studied in terms of gender in both test and control groups was equal, i.e. 50% male and 50% female.

Table 2 shows that 50% of the people studied in both the test and control groups were 30-60 years old and 50% of the people were over 60 years old. Also, based on this table, the average and standard deviation of the age of the test group was The order of 60.1 and 12.9 years, and in the control group was 59.8 and 12.8 years, respectively, and there was no significant difference between the two groups ($P = 0.726$).

Table 3 shows that in the test group, before the intervention, the highest percentage of pain intensity based on the VAS scale (14.4%) and the lowest percentage (0%) which respectively have pain intensity between 3.1-4 (highest percentage) and 1 - 0 and 8.1-9 cm (the lowest percentage) and similarly in the control group, the highest percentage of pain intensity (17.6%) and the lowest percentage (0%) which respectively have a pain intensity between 4.1-5 (the highest percentage) is 0-1, 1.1-2 and 9.1-10 cm (the lowest percentage). It should be noted that most participants in the test group had moderate pain intensity (3-1.6 cm) and in the control group most participants had moderate pain intensity (3-1.6 cm).

Table 4 shows that in the test group after the intervention, the highest percentage of pain intensity based on the VAS scale (16%) and the lowest percentage (0%) have pain intensity between 2.1-3 (the highest percentage) and 0-1, 7.1-8, 8.1-9 and 9.1-10 cm (the lowest percentage) and similarly in the control group, the highest percentage of pain intensity (14.4%) and the lowest percentage (0%) are respectively The pain is between 6.1-7 (the highest percentage), 0-1, 1.1-2, and 9.1-10 cm (the lowest percentage). It should be noted that most of the participants in the test group had mild pain intensity (1-3 cm) and in the control group most of the participants had severe pain intensity (6-9 cm).

Table 5 shows that in patients with unstable angina, pain intensity increased significantly after the usual procedure compared to before.

Table 6 shows that in patients with unstable angina, the intensity of pain has decreased significantly after the intervention compared to before.

Discussion

This research has investigated the effect of Tellington's anterior chest massage on the pain intensity of patients with unstable angina pectoris. One of the effective non-drug methods for pain is massage. There are many types of massage, a new method of which is Tellington massage [30]. This massage method is cheap and simple and does not require many facilities to learn and use it. Therefore, in this study, this method was used to reduce pain in patients with unstable angina pectoris. These are discussed in the following findings of the study. In this study, two experimental and control groups were used to investigate the effect of massage on the pain intensity of patients with unstable angina pectoris. In both test and control groups, the participants in the research were equalized in terms of age and gender, and this equalization helped the researcher eliminate the confounding effect of age and gender on pain intensity. Pain is a mental experience that can be experienced differently in different people. However, in studies that are conducted on pain intensity, limitations such as understanding different experiences can be unavoidable. The average age of the participants in this research in both control

and test groups was about 60 years, and statistically, there was no significant difference between the two groups. In general, angina pectoris occurs in women over 55 years old and in men over 45 years old. Angina occurs in men at a younger age than women [6]. In a similar study conducted by Wendler entitled "The effect of Tellington's touch on the pain intensity of healthy people who were waiting for angiocyte implantation," to eliminate the confounding effect of age and sex, he used the blocked random sampling method and these two The variable was divided equally between the test and control groups [43]. The comparison of pain intensity in the control group before and after the usual procedure showed that there was a significant difference in the intensity of pain in the control group before and after the intervention so the average pain intensity in the control group after the intervention compared to the pain intensity It has increased significantly before the intervention. According to the researcher, the reason for this phenomenon could be the frequent hospitalization of most of the patients participating in the research, who were admitted to the CCU cardiac intensive care unit more than 2 or 3 times and had used nitroglycerin medicine continuously during the treatment period. Because there is a hypothesis that frequent and continuous use of nitrate drugs can create a tolerance to this drug in a person. In this regard, the results of Alkayam's research during an interventional study titled "The incidence of early tolerance to the effects of nitroglycerin in patients with coronary artery disease and heart failure," showed that continuous use of nitroglycerin for 24 hours caused tolerance. Compared to this drug and reducing its therapeutic effects [44]. Also, Stewart and Holtz in a research entitled "The effect of long-term treatment with nitroglycerin and its effect on the dilation of the large coronary artery in conscious dogs," showed that the continuous use of nitroglycerin for 5 days and 4 hours every day can have anti-inflammatory effects. This drug reduces angina, such as coronary vasodilation, and is also likely to potentially increase factors that increase myocardial oxygen consumption, such as tachycardia. They stated that the dilation of coronary arteries by nitroglycerin is done through the stimulation of water-soluble guanylate cyclize and the increase of cyclic GMP, that due to the long and continuous use of nitroglycerin, the amount of cyclic GMP in smooth muscles decreases, and thus the dilation effect of coronary arteries in Nitroglycerin disappears, which is called tolerance to the effect of nitroglycerin [45]. During a review study, Klemenska stated that the main reason for the continuous limitation of the use of nitroglycerin is the development of tolerance to the effects of this drug in the form of a reduction in the effect of vasodilation and the necessity of using higher doses due to the high use of these drugs [46].

Conclusion

The results of this research show that the Tellington method of anterior chest massage by giving nitroglycerin reduces the intensity of chest pain in patients with unstable angina pectoris and it can be used as a simple and effective treatment in reducing the pain of patients with considered unstable angina pectoris.

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Tables

Table 1. Relative and absolute frequency distribution of the studied subjects according to gender in the two test and control groups.

Sex	Test Group		Control Group	
	Frequency	percentage	Frequency	Percentage
Male	16	50	16	50
Female	16	50	16	50
Total	32	100	32	100

Table 2. Relative and absolute frequency distribution of the studied subjects according to age and their mean and standard deviation in the two test and control groups.

Age	Test Group				Control Group				P value
	Frequency	Percentage	Mean	Standard Deviation	Frequency	Percentage	Mean	Standard Deviation	
30-60	16	50	60.1	12.9	16	50	59.8	12.8	0.7260
60>	16	50			16	50			
total	32	100			32	100			

Table 3. Distribution of relative and absolute frequency of pain intensity in two test and control groups before the intervention.

Severity Of Pain	Test Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
0-1	-	-	-	-
1.1-2	1	1.6	-	-
2.1-3	1	1.6	5	8
3.1-4	9	14.4	4	6.4
4.1-5	5	8	11	17.6
5.1-6	7	11.2	4	6.4
6.1-7	5	8	4	6.4

7.1-8	3	4.8	3	4.8
8.1-9	-	-	1	1.6
9.1-10	1	1.6	-	-
Total	32	50	32	50

Table 4. Frequency distribution of relative and absolute frequency of pain intensity in the test and control groups after the intervention.

Severity Of Pain	Test Group		Control Group	
	Frequency	Percentage	Frequency	Percentage
0-1	-	-	-	-
1.1-2	2	3.2	-	-
2.1-3	10	16	1	1.6
3.1-4	7	11.2	6	9.6
4.1-5	8	12.8	2	3.2
5.1-6	3	4.8	5	8
6.1-7	2	3.2	9	14.4
7.1-8	-	-	6	9.6
8.1-9	-	-	3	4.8
9.1-10	-	-	-	-
Total	32	50	32	50

Table 5. Mean and standard deviation and comparison of chest pain intensity in patients with unstable angina pectoris before and after routine surgery.

Severity of Pain	Control Group		P Value
	Mean	Standard Deviation	
Before the usual action	4.88	1.57	< 0.001

Post the usual action	5.90	1.68
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Table 6. Mean and standard deviation and comparison of the intensity of chest pain in patients with unstable angina before and after intervention (giving sublingual nitroglycerin and massage by Tellington method).

Severity of Pain	Test Grope		P Value
	Mean	Standard Deviation	
Before massage	5.11	1.74	< 0.001
Post massage	3.81	1.20	