Artery Research (2017) 17, 33–38

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/artres

Effect of Benson relaxation technique on the preoperative anxiety and hemodynamic status: A single blind randomized clinical trial

Jalal Poorolajal [a], Fatemeh Ashtarani [b,*], Neda Alimohammadi [c]

[a] *Modeling of Noncommunicable Diseases Research Center and Department of Epidemiology & Biostatistics, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran*
[b] *Clinical Research Development Unit of Farshchian Heart Center, Hamadan University of Medical Sciences, Hamadan, 6517838695, Iran*
[c] *Department of Nursing, School of Nursing and Midwifery, Hamadan University of Medical Sciences, Hamadan, Iran*

Received 25 September 2016; received in revised form 23 November 2016; accepted 10 January 2017
Available online 28 January 2017

KEYWORDS
Relaxation therapy;
Anxiety;
Hemodynamics;
Surgical procedures;
Surgery;
Clinical trial;
Iran

Abstract *Background:* Preoperative anxiety is a challenge in most surgical interventions that needs to be taken into consideration. This trial assessed the effect of relation technique on the anxiety and hemodynamic response in patients undergoing surgical procedures.
Methods: This single blind, randomized clinical trial was conducted on patients who were candidates for coronary artery bypass graft, coronary angiography, percutaneous intervention, or general surgery at Ekbatan and Besat Hospitals, Hamadan University of Medical Sciences, from March to August 2014. Patients were randomly assigned to intervention and control groups. The intervention group received Benson's relaxation technique, a half an hour before surgical procedures. The preoperative anxiety and hemodynamic status (systolic and diastolic blood pressure, pulse pressure, heart rate, and respiratory rate) were evaluated before and after intervention.
Results: Of 166 patients identified, 144 patients enrolled into the study. No patient declined follow-up. The baseline clinical characteristics of the patients in the intervention and control groups were nearly the same. The mean systolic and diastolic blood pressure, pulse pressure, the average number of heart rates and respiratory rates declined significantly in the intervention group compared to the control group ($P < 0.001$). The mean score of hospital anxiety was significantly lower in the intervention group than in the control group ($P < 0.001$). The intervention was effective in both males and female patients.

* Corresponding author. Fax: +98 81 38274496.
E-mail addresses: poorolajal@umsha.ac.ir (J. Poorolajal), ashtarani66@yahoo.com (F. Ashtarani), nalimohamadi68@yahoo.com (N. Alimohammadi).

http://dx.doi.org/10.1016/j.artres.2017.01.002

Conclusion: This trial indicated that Benson's relaxation technique is a safe method with no adverse effects with significant beneficial effect on preoperative anxiety and hemodynamic responses in patients who were candidates for surgical procedures.
Trial registration: Iranian Registry of Clinical Trials registration number: IRCT201312249014N19. http://www.irct.ir/searchresult.php?id=9014&number=19.

Introduction

Most patients experience anxiety before any kind of surgical procedure. It is reported that 24%—72% of patients has some degree of anxiety before percutaneous intervention (PCI).[1] Anxiety is a common emotional distress among patients undergoing coronary artery bypass graft (CABG).[2] About 25%—80% of patients experience anxiety before heart surgery.[3]

Anxiety can exacerbate the symptoms of the disease and may have an undesirable effect on the physiological status.[4] Anxiety can trigger stress response and stimulate releasing epinephrine and norepinephrine. Activation of the neuroendocrine response to stress may be associated with several physiologic changes such as an increase in blood pressure, heart rate, and cardiac output.[5] Poor management of anxiety may be life-threatening in patients with coronary artery disease and may increase the likelihood of myocardial infarction or stroke.[1,3]

Apart from conventional medical treatment, other approaches, such as the relaxation response, education, and music therapy, can be used to manage the preoperative distress and anxiety in patients who are candidates for surgical procedures.[3,6] Relaxation is one of non-pharmaceutical techniques that may useful in reducing anxiety and increase self-esteem by effecting on the mental and emotional status.[7] Benson's relation technique in one of the most popular methods of relation which was first introduced in 1975 by Herbert Benson, a Harvard physician. He denoted that the technique could bring about the relaxation response by reducing the activity of the autonomic nervous system.[8] It is indicated that Benson's relaxation technique can reduce the severity of pain and improve the quality of life in patients with hemodialysis.[9] It can efficiently decrease the emotional distress during the period of diagnostic uncertainty in women who underwent percutaneous breast biopsy.[10] In addition to its simplicity, this technique is an inexpensive, efficacious, and practical method to reduce pain, anxiety, and medication during invasive procedures such as femoral angiography.[11]

It is posited that Benson's relaxation technique can counteract the stress response before and during invasive procedures and might be associated with better patient outcomes, however, no study has been conducted that examines and compares the effect of this relaxation technique on different types of surgeries. This clinical trial was conducted to examine the effect of Benson's relation technique on the anxiety and hemodynamic response in patients undergoing various kinds of surgical procedures including coronary artery bypass graft (CABG), coronary angiography (CAG), percutaneous intervention (PCI), or general surgeries.

Materials and methods

This single blind, randomized clinical trial was conducted in Ekbatan and Besat Hospitals, affiliated with Hamadan University of Medical Sciences, in the west of Iran, from March to August 2014. The patients were enrolled voluntarily into the trial and gave written informed consent. The Ethics Committee of the university approved the consent procedure and the whole trial. The protocol was registered with the Iranian Registry of Clinical Trials on January 6, 2014 (IRCT201312249014N19).

The study population included patients aged 18 to 65 who were candidates for CABG, CAG, PCI, or general surgery. Patients with any of the following problems were excluded from the trial: (a) hearing loss; (b) muscle paralysis; (c) known psychiatric disease; (e) substance or alcohol abused dependent.

According to the results of a clinical trial conducted by Zakerimoghadam et al.,[12] the mean (SD) level of anxiety on the first hour after angiography was 3.96 (2.17) and 6.58 (2.18) in the intervention receiving relaxation technique and the control groups, respectively, on a scale of 0—10. On the basis of these results, we arrived at a sample size of 18 for each group and a total sample size of 36 at 95% significance level and 95% statistical power. Since we used the intervention for four different groups of patients undergoing CABG, CAG, PCI, and general surgeries, we quadrupled the sample size to a maximum of 144, of which 36 were allocated to the CABG group, 36 to the CAG group, 36 to the PCI group, and 36 to the general surgery.

The eligible patients were randomly assigned to the intervention and control groups using the balance block randomization method. The allocations remained concealed during the study. For this purpose, we prepared four sheets of paper, writing on two sheets "I" for "intervention" and on two "C" for control". The paper sheets were pooled, placed in a container, and randomly drawn one at a time for each patient without replacement until all four sheets were drawn. The four paper sheets were then placed back into the container and this action repeated until the sample size was reached.

The trial was carried out as single blind so that the examiner who evaluated the preoperative anxiety and hemodynamic responses was not aware of the allocated intervention. Furthermore, the statistical analyst was unaware of