ISSN: 1676-4285

OBJN Online Brazilian Journal of Nursing
ENGLISH
Federal Fluminense University
AURORA DE AFONSO COSTA NURSING SCHOOL
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Preview Notes

Bath-effectiveness in infarcted patients: clinical trial with regard to oxygen consumption and myocardial contractility

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ABSTRACT

Aim: To compare the hemodynamic effects and myocardial oxygen consumption (MVO 2) during bathing in bed without hydrothermal handling and positioning in the case of patients with acute myocardial infarction (AMI) and not infarcted by thoracic electrical bioimpedance. **Method:** Clinical, parallel, randomized and controlled trial. The dimensioning of a discrete and finite sample was carried out and the resulting sample is composed of 30 infarcted patients classified as Killip class I or II, admitted to a private hospital, and assisted up to 72 hours after the cardiac event; 30 hospitalized controls with no cardiac cause, matched by age and sex, with pulse pressure <50 mm/Hg. Data processing: SPSS; descriptive and inferential statistical analysis: measures of central tendency, Shapiro-Wilk normality test; ANOVA and Kruskal-Wallis. Significance level of 5%. **Conclusion:** The results will make a difference for nursing research in order to test the scientific outcomes of the use of a bed bath, and the safety and quality of care provided to infarction patients.

Descriptors: Baths; Nursing care; Hemodynamics; Evidence-Based Medicine; Oximetry.

PROBLEM SITUATION AND ITS SIGNIFICANCE

Worldwide, in 2012, cardiovascular diseases were the cause of 17.3 million deaths, and it is estimated that this will rise to 23.6 million by 2030. In Brazil, acute myocardial infarction (AMI) and stroke stand out as priorities in the health sector[1].

In the preservation of post-event necrotic myocardial tissue, there is a tendency to minimize the occurrence of complications and reduced chest discomfort through bed rest, avoiding increased cardiac work and reducing oxygen consumption[2]. Regarding the period of instability, the adoption of oxygen-saving strategies in terms of cardiac fibers, with a minimum of 72 hours after AMI, is highly recommended.

The supply of basic human needs includes hygiene, since care is represented by the bed bath, which implies different effects, including client satisfaction, thermoregulation, hospital costs, microbiology, and oxy-hemodynamic balance[3].

The lack of new studies that define the hemodynamics of infarction patients may be related to the difficulty in obtaining data regarding invasive measures such as pulmonary artery catheters. One of the alternatives for noninvasive hemodynamic monitoring is thoracic electrical bioimpedance (TEB). This method determines non-invasively the cardiac debt, among other flow variables, contractility and blood resistance, based on electrical impedance through the thoracic wall.

HYPOTHESIS OF THE RESEARCH

The variability of noninvasive hemodynamic patterns and myocardial oxygen consumption in the case of infarcted and non-infarcted patients during the administration of a bed bath is similar.

OBJECTIVE

The objective is to compare the hemodynamic effects and myocardial oxygen consumption during bathing in bed, without hydrothermal handling and positioning in the case of infarcted and non-infarcted patients.

METHOD

This is a clinical, parallel, randomized controlled trial. The size of the sample - 60 patients - was based on the prevalence of AMI in a private hospital in Niterói-RJ,. The size was determined by a sample calculation of finite populations for discrete variables. Thirty infarction patients will be examined within 72 hours of a cardiac event, as well as 30 hospitalized controls without cardiac causes, paired by sex and age, in the coronary unit in the internal medicine and general postoperative sections.

While bathing in bed, hemodynamic monitoring is used by BET, registering 5 pre-bath minute in the dorsal position (DP); the initiation of intervention: 8 minutes in the DP; 4 minutes in the right lateral position; 2 minutes in the left lateral position; 6 minutes in the DP and 5 minutes of post-bath. The first change of decubitus will occur randomly as determined by a table of random numbers in a spreadsheet.

Study variables: heart rate, systolic and diastolic blood pressure, cardiac debt, cardiac index, left ventricular work index, thoracic flow content index, oxygen delivery index, left stroke work index, pre-ejection period of the left ventricle, and myocardial oxygen consumption (MVO_2).

Reis FF, Lima DMV, Silva MES, Barros LSS, Santos KC, Santos MP. Bath-effectiveness in infarcted patients: clinical trial with regard to oxygen consumption and myocardial contractility. Online braz j nurs [internet] 2015 Dec [cited year month day]; 14 (suppl.):371-3. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5285

Criteria for inclusion: adults, with AMI diagnosis confirmed by a dosage of myocardial necrosis markers, electrocardiogram and echocardiogram and classification in Killip classes I or II; for the group of non-infarcted patients: diagnosis of hospitalization for non-cardiac pathology, hospitalized, in the concomitant period, matched by sex and age. General exclusion criteria: pulse pressure value >50 mmHg for men, patients in anasarca, quality indicator of BET> 30%; conditions contraindicated by the manufacturer of BET: septic shock, regurgitation of the aortic valve, septum defect, severe aortic sclerosis, aortic prosthesis, pre-hypertension (MAP>130mmHg), heart rate> 200bpm, height <120 cm or> 230cm, weight less than 30 kg or greater than 155 kg, aortic balloon, heart surgery, and a bathing period that, for any reason, exceeds 20 minutes.

The data will be organized in a spreadsheet, and for statistical analysis the statistical package entitled SPSS 20.0 for Windows version 12, owned by SPSS and STATA, will be used.

In the descriptive statistical analysis, measures of central tendency and hypothesis testing will be performed. In terms of inferential analysis, hypothesis testing and confidence intervals will be applied. The normality test will be Shapiro--Wilk, and comparisons using the Student t-test for paired samples or Wilcoxson; The Mann-Whitney test, analysis of variance (ANOVA) or Kruskal Wallis, depending on the data distribution. The significance level (α) to be adopted is 5% and the confidence interval is 95%.

Data collection started in July 2015 by a team distributed in shifts for the intervention and capture of patients, comprising Masters students, specialist nurses and nursing students. The study was approved by the Ethics Committee of the Faculty of Medicine of the University Hospital Antonio Pedro, FFU, under the opinion 1,124,755.

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Received: 08/08/2015
Revised: 11/11/2015
Approved: 11/11/2015