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ORIGINAL ARTICLE

VITAL SIGNS AND NURSING PROCEDURES IN POSTOPERATIVE PERIOD OF CARDIAC SURGERY

SINAIS VITAIS E PROCEDIMENTOS DE ENFERMAGEM NO PÓS-OPERATÓRIO DE CIRURGIA CARDÍACA

LOS SIGNOS VITALES Y PROCEDIMIENTOS DE ENFERMERÍA EN EL POSTOPERATORIO DE CIRUGÍA CARDÍACA

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ABSTRACT

Objective: developing a comparative analysis of the vital signs of patients after cardiac surgery by exposure to bed bath and renewal of dressings. **Method:** an exploratory descriptive study with a quantitative approach, conducted in the ICU postoperative cardiac surgeries with 18 patients. As a tool for data collection, we used a form, administered before and after nursing procedures, and then, were stored in Microsoft Excel, version Windows Vista, and processed using SPSS version 14.0, organized on a worksheet. The research project was approved by the Research Ethics Committee, Opinion n. 08133595-4. **Results:** according to evidencing the diversity of values of vital signs recorded after performing nursing procedures, interventions implemented reproduce differentiated biological changes. **Conclusion:** nursing care given to the patient should consider, beyond the subjectivity of the patient, the potential to cause changes in their physiological responses. **Descriptors:** Nursing Care; Vital Signs; Postoperative Care.

RESUMO

Objetivo: desenvolver uma análise comparativa dos sinais vitais de pacientes em pós-operatório de cirurgia cardíaca mediante a exposição ao banho no leito e renovação de curativos. **Método:** estudo descritivo-exploratório, com abordagem quantitativa, realizado na Unidade de Terapia Intensiva de pós-operatório de cirurgias cardíacas com 18 pacientes. Como instrumento para coletar os dados, usou-se um formulário, aplicado antes e após os procedimentos de enfermagem; em seguida, foram armazenados no programa Microsoft Excel, versão Windows Vista, e processados no programa SPSS versão 14.0, organizados em planilha. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa, parecer nº 08133595-4. **Resultados:** segundo evidenciou a diversidade de valores de sinais vitais, constatados após a realização dos procedimentos de enfermagem, as intervenções executadas reproduzem alterações biológicas diferenciadas. **Conclusão:** os cuidados de enfermagem dispensados ao paciente devem considerar, além da subjetividade do paciente, a potencialidade de ocasionar modificações nas suas respostas fisiológicas. **Descritores:** Cuidados de Enfermagem; Sinais Vitais; Cuidados Pós-Operatórios.

RESUMEN

Objetivo: desarrollar un análisis comparativo de los signos vitales de los pacientes después de la cirugía cardíaca por la exposición al baño en la cama y la renovación de los apósitos. **Método:** un estudio descriptivo exploratorio con abordaje cuantitativo, realizado en la Unidad de Terapia Intensiva de postoperatorio de cirugías cardíacas con 18 pacientes. Como una herramienta para recopilar los datos, se utilizó un formulario, administrado antes y después de los procedimientos de enfermería, y después se almacenaron en el programa Microsoft Excel, versión de Windows Vista, y procesados en el programa SPSS versión 14.0, organizados en una hoja de cálculo. El proyecto de investigación fue aprobado por el Comité de Ética de Investigación, Opinión No. 08133595-4. **Resultados:** De acuerdo con el destacado, la diversidad de los valores de las constantes vitales registrados después de realizar los procedimientos de enfermería, las intervenciones implementadas reproducen cambios biológicos diferenciados. **Conclusión:** debe considerar la atención proporcionada al paciente, más allá de la subjetividad del paciente, el potencial de provocar cambios en sus respuestas fisiológicas. **Descriptores:** Cuidados de Enfermería; Signos Vitales; Cuidados Postoperatorios.

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INTRODUCTION

Cardiovascular diseases (CVD) are increasingly reaching a large portion of the population. In Brazil, CVD's are responsible for high morbidity and mortality and is the leading cause of death in adults.¹ The treatment of cardiovascular problems has achieved therapeutic advances in both medical and surgical.² Surgical treatment appears as a possibility of a better quality of life when clinical treatment no longer performs effect.

The performance of a surgical procedure, especially the heart, involves a series of physical and psychological issues that are reflected in biological changes observed in a proper assessment of the complaints exhibited by the patient. Such organic manifestations resonate with clinical data analysis, which can be measured and observed.

There are cited as a way to these physiological manifestations measures vital signs, which direct biological stability with changes in blood pressure, the heart and respiratory rates, and also influencing the body temperature as significant.³

Opportunities to assess the physiological changes based on changes in vital signs are promising when associated with the presence of certain procedures, which appear to interfere in the changes of blood pressure (BP), heart rate (HR), respiratory rate (RR) and temperature (T). The realization of the bed bath and renewal of dressings are examples of procedures considered clinical nursing care aimed at the welfare and comfort that contribute to the satisfactory evolution of the state of health of the person in postoperative.⁴

By observing the inconvenience of providing the sick, during its execution, greater metabolic demand, the realization of these procedures has sparked interest and the following question: there are changes in vital signs during its occurrence? Thus, it was established that observation bed bath and dressing changes to confer the discomfort with nursing procedures, and hence its impact on vital signs. This led the authors to construct the hypothesis that patients who experience major annoyances, such as more intense and/or exposure privacy pain when undergoing wound dressing and bed bath, have larger changes in vital signs.

Are called vital signs measurements of blood pressure, heart and respiratory rates and body temperature.⁵ For blood pressure means the force exerted by the blood on the inside of the arteries.⁶ Their values can be

technically measured with the aid of sphygmomanometers and stethoscopes. As stated in the VI Brazilian Guidelines on Hypertension pressure⁷, measures of BP in people above 18 years old are satisfactory when the systolic blood pressure (SBP), which demonstrates the myocardial contraction, comes in values between 130-139 mmHg and diastolic blood pressure (DBP), which represents the cardiac relaxation in the filling of blood through the heart, oscillates within 85-89 mmHg.

The evaluation values of respiratory frequency based on the amount of ventilation given in person during one minute. These values are acceptable when, in the adults, these results are reported in the range of 14-18 breaths per minute (bpm) for males and 16-20 (bpm) for women.⁶ On the external body temperature refers to heat produced by the body to maintain the body homeostasis, which allows adults to suitable values between 36,4°C and 37,3°C (axillary measurement), with the central regulation of the hypothalamic temperature.⁶

According to studies, the heart rate is assessed by curling palpable feeling in peripheral arteries, produced by ventricular contractions in one minute. In the adult, it is usually in the range of 60-100 beats per minute.⁶ As proposed, the observation by nurses, behavioral and physiological aspects is essential for the identification of pathological changes. Even before verbal hindrance for a broad interpretation of the symptoms reported by the patient, analysis of associated physiological signals, in the form of tachycardia, increased blood pressure, tachypnea, pallor, sweating or changes in muscle tension may be suggestive of postoperative responses inadequate.⁸

From these references it can be considered that the performance of nursing procedures such as bed bath and dressing changes, are elements that generate differentiated physiological responses in patients after cardiac surgery. The analysis of this relationship constitutes a subject of this investigation.

Based on advances in research in post-operative period, it is expected to collaborate for an expanded vision of clinical nursing in their proposal to carry out procedures, making this study feasible.

OBJETICVE

- Developing comparative analysis of the vital signs of patients after cardiac surgery by exposure to bed bath and renewal of dressings.

METHOD

Article drawn from the dissertation << Evaluation of pain intensity and vital signs: responses to a nursing procedure >> submitted to the Postgraduate Program in Clinical Care in Nursing and Health, Center for Health Sciences, State University Ceará/UECE. Fortaleza-Ceará, Brazil, 2009.

An exploratory descriptive study with a quantitative approach, performed in the Intensive Care Unit (ICU) postoperative of a public state hospital, the Unified Health System (SUS), located in the city of Fortaleza-CE. As inclusion criteria, we considered people undergoing cardiac surgery with median sternotomy realization, by prior appointment of the operative procedure. In the event months of research, was registered in the health institution, an average number of visits of 42 patients/ month.

18 persons participated in the post-operative (PO) for elective heart surgery, all extubated, conscious, able to verbalize, and submitted to the first renewal procedure of surgical dressing after the post-anesthetic recovery, lower interval to 36 hours post-surgery.

The data collection took place during the months of August and September 2008 and used as a tool to establish a form information, applied before and after the procedures nursing bed bath and replacement of surgical dressings. Possession of the collected data, these were stored in Microsoft Excel, version Windows Vista, and processed using SPSS version 14.0, organized spreadsheet to analyze the clinical and surgical variables, vital signs and their relationships, identifying associations between their crosses by statistical tests.

Checked the vital signs were analyzed according to the recommendations as physiological values and their variations, which can determine changes consistent with biological damage. Thus, as it was set, the respiratory rate is considered normal when the amount of breathing movements is in the range of 14-20 breaths per minute, the physiological heart rate is 60-100 beats per minute and the temperature between 36,4°C to 37,3°C.⁴ The systolic blood pressure and diastolic blood pressure were classified as determined by VI Brazilian Guidelines on Hypertension and grouped in great / normal, borderline and mild moderated hypertension.⁷ The table contains the collected data.

In accordance with the requirements, the initial project was approved by the Research Ethics Committee of the State University of Ceará (UECE) and Messejana Hospital (HM) Dr. Carlos Alberto Gomes Studart, in Fortaleza - UECE. Opinion No. 08133595-4; Protocol CEP / HM 519 / 08.

To the participants all rights related to confidentiality and anonymity on responses to the form, depending precepts the Resolution 196/96 of the National Health Council, inherent in human research were provided. All subjects signed a consent form.

RESULTS

Of the 18 study participants, 11 (61,2%) are male and 7 (38,8%) are female, and the average age is of 53,5 years old. As identified, the most frequent surgical diagnosis of patients postoperatively was CABG and mean postoperative period was of 24,5 hours.

Table 1. Associations between vital signs and sponge bath and dressings - Fortaleza-CE, 2008. (n=18)

Vital signs	Sponge bath				Curatives			
	Before		After		Before		After	
	n	%	n	%	n	%	n	%
SBP (mmHg)								
< 130 (Optimal/ Normal)	15	83,3%	14	77,8%	13	72,2%	16	88,9%
130 - 140 (Borderline)	2	11,1%	4	22,2%	4	22,2%	2	11,1%
140 - 179 (Mild to moderate hypertension)	1	5,6%	-	-	1	5,6%	-	-
DBP (mmHg)								
< 85 (Optimal/ Normal)	18	100%	16	88,9%	17	94,4%	17	94,4%
85 - 90 (Borderline)	-	-	2	11,1%	-	-	-	-
90 - 99 (Mild hypertension)	-	-	-	-	1	5,6%	1	5,6%
FR (mrpm)								
14 - 20	6	33,3%	6	33,3%	7	38,9%	6	33,3%
≥ 20	12	66,7%	12	66,7%	11	61,1%	12	66,7%
FC (bpm)								
60 - 100	16	88,9%	16	88,9%	16	88,9%	15	83,3%
≥ 100	2	11,1%	2	11,1%	2	11,1%	3	16,7%
T (°C)								
35,5 - 37,5	16	88,9%	17	94,4%	17	94,4%	16	88,9%
≥ 37,5	2	11,1%	1	5,6%	1	5,6%	2	11,1%

According to the data, the realization of the bed bath and dressings reduced systolic hypertension classified as mild to moderate in 1 patient (5,6%). Regarding the distribution of diastolic BP, after the bed bath, two patients (11,1%) had elevated diastolic blood pressure levels, which went from excellent/ borderline normal. Likewise, the renewal of dressings changed the DBP before great/ normal for mild hypertension in 1 patient (5,6%).

The respiratory rate, when checked before and after the bed bath, maintained at high levels in 12 participants (66,7%). Still, it was perceived as the embodiment of dressings helped to raise the values of FR in the same frequency (66,7%) patients.

When investigated before and after the bath in bed, heart rate was elevated in only two patients (11,1%), while the renewal of dressings caused tachycardia in 3 patients (16,7%); yet the checking the temperature with the completion of the bed bath, showed a decrease in values because 17 patients (94,4%) now have physiological thermal levels. With the curative process, there was an increase in temperature, but before the procedure, in 1 patient (5,6%) was noted hyperthermia at the end of the renewal of dressings in 2 (11,1%), the values of axillary temperature increased.

DISCUSSION

When it comes to the analysis of associations between vital signs from the collated responses before and after renewal of dressings, as observed in systolic blood pressure before changing surgical dressings showed noteworthy values that maintained its rating as excellent/normal (72,2%), reaching

values above average. Soon, it can be diagnosed as mild to moderate hypertension in 5,6% of cases. When checked after the nursing intervention, it was noted the improvement of systolic blood pressure, as 88,9% began to show great/standard classification, therefore, the absence of people with mild to moderate hypertension.

Other highlights of these findings are due to the satisfactory maintenance of blood pressure levels in people analyzed in a short period of time postoperatively. This fact, too, was approached verifying normal great/diastolic blood pressure levels, before the nursing procedure (94,4%), in which the detection of mild diastolic hypertension was manifested in lower prevalence (5,6% of cases).

It is noteworthy: diastolic blood pressure values after the renovations of dressings, express maintenance of optimal frequency / normal levels in 94,4% of cases after the procedure, as well as maintenance of values compatible with mild hypertension in 5,6% of findings.

Findings as to BP after the bed bath, small variation of the values of pressure, both systolic and diastolic was found, provided however, within the normal range, demonstrating the non-interference of this procedure in this physiological pattern, emphasizing their use as a method of providing welfare.

As disclosed , early identification and timeliness in attendance before demonstrative findings of changes in arterial pressure induce the prevention of associated complications and require care nurse returned to clinical needs affected, contributing to the

professional nursing diagnoses themselves identify these situations, such as, impaired gas exchange, decreased cardiac output, hyperthermia, ineffective tissue perfusion, acute pain, among others.⁹

The breathing pattern gives suggestions on the process of ventilation on respiratory, important to assess the patient in satisfactory parameters PO mechanical person. In this research, the physiological lung activity was investigated by observing the frequency of respiratory movements, when deemed appropriate resulted in values lower than 20 breaths in a minute. These values were observed in the first analysis, in 38,9% of investigated. However, 61,1% of the individuals showed an increase in respiratory rate, with values above 20 breaths for one minute. This showed the prevalence of respiratory changes in PO.

In the following analysis of respiratory frequency, which occurred after the renewal of the dressings, the figures for ventilatory incursions were kept almost the same frequencies, demonstrating the stability through the respiratory dynamics of the performed activity. However, bed bath, due to the manipulation and frequent change of position of the patient during the procedure, there was very different changes in breathing pattern, with increased frequency and decreased in similar proportions. These values returned proportionally after completion of the procedure, the previously measured values.

In a study with 30 patients undergoing thoracic surgery, to assess impairment of lung function in patients undergoing cardiac surgery, we identified, significant impairment of lung function in these patients.¹⁰ This is a well-known complication, but with causes still little explored, confirming findings according to which lung function is influenced by pain intensity, since the maximum inspiratory volume kept weak significant correlation with pain intensity.

Regarding the heart rate, as noticed before dressing changes of the patients in this study showed heartbeat, mostly within the limits considered physiological. Thus, there were raised some arguments, from considerations of the heart muscle, which underwent repairs in a short period, being assigned various control interventions for maintenance and stability of cardiac rhythm.

When evaluating the heart rate after dressing changes, depending on was noted, compatible with normosphygmia values (between 60 and 100 beats during one minute) were present in 83,3% of patients in the PO.

As you know, after the heart surgery, technical support nurses must respond effectively to any activity of the cardiorespiratory system, based on the initial evaluation of patients, detecting abnormalities suggestive of nursing care, such as cardiac monitoring, for the detection amendments as arrhythmias.¹⁰ Thus, leads to the inference that the stability of the heart rate, then observed, stems from the continuous control of the situations that maintain/ restore cardiac output.

The maintenance of the physiological heart rate after the exchange of dressings, in which 83,3% of patients studied, we kept the heartbeat values of 60 to 100 per minute, allowed claim inexistence changes suggestive of cardiac output change following the intervention nursing.

During the bed-bath, there was an increase in HR, but after a decrease. Therefore, the proportions were maintained previously noted, emphasizing the feeling of comfort provided by this procedure.

When measured before and after the end of the trading dressings, body temperature showed stability, establishing the thermal balance in patients. This temperature is influenced by some factors that can affect it, such as age (extremes of age have more trouble keeping the temperature at stable levels), gender (women of reproductive age have greater lifting capacity), exercise and activity (increase heat production), circadian rhythm (is highest from late afternoon until early evening), emotions (directly proportional), illness or injury, and drugs which may increase or reduce the metabolic rate.⁵

As part of the study, even as the thermal values were modified after cleaning, reducing, in one patient, the measurement of 38°C (feverish) to 37,5°C after exposure to bed bath, proving its indications in reducing body temperature.

Thus, it becomes important to conduct research that contextualizes nursing care in perioperative period of cardiac surgery, which can demonstrate the effectiveness of clinical care technologies essential nursing for scientific strengthening the profession and practice of optimization.¹¹

CONCLUSION

According highlighted the diversity of values of vital signs, recorded with the procedures of nursing interventions performed reproduce differentiated biological changes, but the bed-bath resulted in higher changes in vital parameters, such as the elevation of

blood pressure levels associated with changes in respiratory and cardiac frequencies. Despite the changes in blood pressure, these were not sufficient to promote change in the classification, however, are important to assess the degree of change in their values and possible implications for the health of people.

Nursing care given to the patient in the postoperative period, should consider and subjectivity of this, the potential for causing changes in physiological responses in people involved. Dispense comfort to the patient, not just the immediate post-operative period, but at all stages of the life cycle, it is essential to the practice of care. Thus, we favor the (re)establish its level of health through a disciplinary, science and especially humanistic attitude, provided by nurses.

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