

Douglas de Sá Dias<sup>1</sup>, Mariane Vanessa Resende<sup>2</sup>,  
Gisele do Carmo Leite Machado Diniz<sup>3</sup>

## Patient stress in intensive care: comparison between a coronary care unit and a general postoperative unit

*Estresse do paciente na terapia intensiva: comparação entre unidade coronariana e pós-operatória geral*

1. Hospital Vera Cruz - Belo Horizonte (MG), Brazil.  
2. Centro Terapêutico Master Fisio -  
Betim (MG), Brazil.  
3. Department of Physical Therapy, Pontifícia  
Universidade Católica de Minas Gerais -  
Betim (MG), Brazil.

### ABSTRACT

**Objective:** To evaluate and compare stressors identified by patients of a coronary intensive care unit with those perceived by patients of a general postoperative intensive care unit.

**Methods:** This cross-sectional and descriptive study was conducted in the coronary intensive care and general postoperative intensive care units of a private hospital. In total, 60 patients participated in the study, 30 in each intensive care unit. The stressor scale was used in the intensive care units to identify the stressors. The mean score of each item of the scale was calculated followed by the total stress score. The differences between groups were considered significant when  $p < 0.05$ .

**Results:** The mean ages of patients were  $55.63 \pm 13.58$  years in the coronary intensive care unit and  $53.60 \pm 17.47$  years in the general postoperative intensive care unit. For patients in the coronary intensive care unit, the main stressors were “being in pain”, “being unable to fulfill family roles” and “being bored”. For patients in the general postoperative intensive care unit, the main stressors

were “being in pain”, “being unable to fulfill family roles” and “not being able to communicate”. The mean total stress scores were  $104.20 \pm 30.95$  in the coronary intensive care unit and  $116.66 \pm 23.72$  ( $p = 0.085$ ) in the general postoperative intensive care unit. When each stressor was compared separately, significant differences were noted only between three items. “Having nurses constantly doing things around your bed” was more stressful to the patients in the general postoperative intensive care unit than to those in the coronary intensive care unit ( $p = 0.013$ ). Conversely, “hearing unfamiliar sounds and noises” and “hearing people talk about you” were the most stressful items for the patients in the coronary intensive care unit ( $p = 0.046$  and  $0.005$ , respectively).

**Conclusion:** The perception of major stressors and the total stress score were similar between patients in the coronary intensive care and general postoperative intensive care units.

**Keywords:** Critical care; Stress; Humanization of assistance; Postoperative period; Intensive care units; Coronary care units

**Conflicts of interest:** None.

Submitted on November 13, 2014

Accepted on January 20, 2015

### Corresponding author:

Gisele do Carmo Leite Machado Diniz  
Centro Clínico de Fisioterapia da PUC-Minas  
em Betim  
Rua do Rosário, 1.081 - Angola  
Zip code: 32630-000 - Betim (MG), Brazil  
E-mail: giselemdiniz@yahoo.com.br

**Responsible editor:** Jorge Ibrain Figueira Salluh

DOI: 10.5935/0103-507X.20150005

### INTRODUCTION

The general intensive care unit (ICU) groups support elements for critically ill patients who need continuous health care, in addition to specialized human resources and materials. The specialized ICU is intended to treat patients of a medical specialty or groups of individuals with related diseases or conditions, such as cardiac, neurological, surgical and traumatic, among others.<sup>(1)</sup>

However, despite being an environment with complex technological apparatus aimed at better patient care, most ICUs are environments that generate stress. Some triggers are lack of natural light, disruption of sleep-wake patterns, absence of clocks and lack of contact with family and friends, in addition to the several clinical procedures that cause patients to experience different types of physical and psychological discomfort.<sup>(2-4)</sup> Stressful conditions may trigger an inflammatory response in the brain and other systems, which is characterized by the complex release of inflammatory mediators. This response can cause different symptoms that depend on the intensity and quality of stressors.<sup>(5)</sup> In more extreme situations, such iatrogenic and environmental factors may contribute to the onset of delirium, which can be defined as an acute brain dysfunction characterized by transient and fluctuating changes in the consciousness state together with cognitive impairment.<sup>(6)</sup>

All changes triggered by stressors may interfere with the therapeutic objectives proposed by intensivists, including the success of ventilation weaning.<sup>(7,8)</sup> Additionally, other consequences may also be observed after hospital discharge. A study that evaluated functional and psychological aspects immediately after ICU discharge showed high incidence rates of depression and anxiety symptoms and sleep disorders in patients hospitalized in ICUs for 72 hours or more.<sup>(9)</sup>

Aiming to identify and stratify stressors in the ICU from the perspective of patients and/or their families and/or healthcare professionals, several studies<sup>(2-4,10-19)</sup> have been conducted. However, few studies compare the perception of stressors by patients with different clinical conditions. Biancofiore et al.<sup>(3)</sup> compared 104 patients who received a liver transplant with 103 patients who underwent elective upper abdominal surgery in the same ICU. The authors observed that the mean scores of liver recipients were higher than the mean scores of patients who underwent elective abdominal surgery. This study showed that the perceptions of stressors might vary according to the clinical profile of the patient. A similar result was found in another study<sup>(16)</sup> that assessed the stress level in a sample composed of family members, professionals and 30 patients in a general ICU. In this analysis, the mean scores also differed between the patients evaluated, and the mean score of patients who underwent clinical treatment was lower than the mean score of patients who underwent surgery. However, in both studies, no statistical tests were applied to test the significance of this difference between scores.

Thus, despite the existing knowledge about different stress-triggering factors in intensive care, studies that

compare the perception of these factors among patients of specialized ICUs are not available in the literature. Given the above, the present study aimed to evaluate and compare the stressors identified by patients of a coronary ICU (CO-ICU) with those perceived by patients of a general postoperative ICU (PO-ICU). The hypothesis of the study was that there could be relevant differences between the units. Consequently, knowing these differences could favor the implementation of preventive measures specific for each type of ICU.

## METHODS

This descriptive cross-sectional study was developed at the *Procordis* CO-ICU and the PO-ICU of the *Santa Casa de Misericórdia de Belo Horizonte* (MG) from July to September 2013. During this period, both ICUs had 40 beds intended for adult patients. The study was approved by the Ethics and Research Committee of the *Pontifícia Universidade Católica de Minas Gerais* and by the *Instituto de Ensino e Pesquisa da Santa Casa de Misericórdia de Belo Horizonte* under CAEE nº 14447613.0.0000.5137.

The sample consisted of individuals from both genders, aged over 18 years, conscious, with no history of hospitalization in the ICU, with lengths of stay in the ICU between 24 and 72 hours, breathing spontaneously, and who agreed to sign the informed consent form. Patients who were unable to effectively communicate verbally and those who did not want to or could not properly answer the questions on the questionnaire were excluded from the study.

Initially, a verbal fluency test was applied to evaluate the patient's language skills, their semantic memory and their cognitive function. Patients were asked to list as many animals as they could in a timed minute. The minimum score required was 9 points for patients who had up to 8 years of education and 13 points for patients who had more than 8 years of education.<sup>(20)</sup> Subsequently, a form developed by the authors was used to characterize the sample by collecting data on sociodemographic variables such as gender, age, marital status, years of education and employment status. The clinical data collected from the medical records were clinical diagnosis, length of stay in the ICU, time under mechanical ventilation, identification of healthcare equipment and devices used during hospitalization, psychotropic drugs prescribed in the previous 24 hours, and data required to calculate the Thrombolysis in Myocardial Infarction (TIMI)<sup>(21)</sup> and Acute Physiology And Chronic Health Evaluation II (APACHE II)<sup>(22)</sup> severity scores. The TIMI score was used

to stratify the risk in patients with unstable angina and acute myocardial infarction (AMI) who were admitted to the CO-ICU. The TIMI that is routinely used in the CO-ICU in which the study was conducted allows a maximum score of 7 points and is categorized as low risk (score 0-2), intermediate risk (score 3-4) or high risk (score 5-7). The APACHE II score was used to stratify the risk and prognosis in patients of the PO-ICU, and the higher the score was, the higher the severity.

To identify stressors, a version of the Environmental Stressor Questionnaire (ESQ)<sup>(10)</sup> validated and culturally adapted to Brazilian Portuguese, called the Assessment Scale for Stressors in the Intensive Care Unit (*Escala de Avaliação de Estressores em Unidade de Terapia Intensiva*),<sup>(23)</sup> was used. Two previously trained researchers applied this tool. The scale is composed of 50 items to identify the main events perceived as stressful by the patients. The degree of stress caused by each item is determined using a scale of values from zero to 4, in which the value 1 is considered as not stressful, 2 as slightly stressful, 3 as stressful, 4 as very stressful and zero as not applicable, referring to cases where the patient did not experience the stressful event. The total score in this scale varies from zero to 200, and the higher the value is, the higher the stress perceived by the patient. The tool is also composed of two open questions regarding suggestions of items that should be included in the scale and comments about the tool.

For the data analysis, the Statistical Package for Social Sciences (SPSS) 20.0 was used. The intraclass correlation coefficient (ICC) was used to analyze the inter-rater reliability. The information collected was expressed as absolute values, percentages or means  $\pm$  standard deviations. Initially, the Shapiro-Wilk test was applied to test for data normality. Sociodemographic and clinical data of both ICUs were compared using *Student's t* test and the chi-square test. The stressors of both ICUs were compared using the Mann-Whitney test. The Spearman correlation test was used to correlate the clinical variables with the total stress score (TSS). The significance level was set as  $p < 0.05$ .

## RESULTS

After selecting all patients eligible for participation in the study, 24 patients were excluded. Of these, 12 did not reach the minimum score in the verbal fluency test; three chose not to answer the proposed questionnaire; five were asleep; and four were interrupted during data collection for examinations and/or lengthy procedures. In the two last situations, the interview could not be resumed later.

Thus, 60 non-consecutive patients participated in this study, 30 from the CO-ICU and 30 from the PO-ICU.

The mean patient ages were  $55.63 \pm 13.58$  years in the CO-ICU and  $53.60 \pm 17.47$  years in the PO-ICU ( $p = 0.617$ ). The groups were homogeneous regarding all demographic and clinical characteristics evaluated (Table 1), except for the already described clinical diagnoses, the verbal fluency score, which was higher in the CO-ICU, and the use of mechanical ventilation. Regarding mechanical ventilation, only 53.33% of patients evaluated in the PO-ICU were maintained on invasive mechanical ventilation in the postoperative period, with a mean time under mechanical ventilation of  $10.43 \pm 12.14$  hours. In the CO-ICU, none of the patients included in the study had been on mechanical ventilation until the data were collected.

The mean TSSs were  $104.20 \pm 30.95$  in the CO-ICU and  $116.66 \pm 23.72$  in the PO-ICU, and no significant differences were found between the ICUs evaluated ( $p = 0.085$ ). The inter-rater reliability regarding the application of the Assessment Scale for Stressors in the ICU was 0.99. Table 2 shows that, in the comparison per stressor, there were significant differences between only three items. "Having nurses constantly doing things around your bed" was more stressful for the patients in the PO-ICU than for those in the CO-ICU ( $p = 0.013$ ). Conversely, the items "hearing unfamiliar sounds and noises" and "hearing people talk about you" were more stressful for the patients in the CO-ICU ( $p = 0.046$  and  $0.005$ , respectively).

The TIMI severity score of patients evaluated in the CO-ICU was  $2.53 \pm 1.25$ , which characterizes a sample with mild to moderate mortality risk; there was no correlation with the TSS ( $p = 0.285$ ). In the intergroup analysis of the CO-ICU, there were no significant correlations between TSS and gender ( $p = 0.419$ ), age ( $p = 0.096$ ), marital status ( $p = 0.285$ ), years of education ( $p = 0.521$ ), verbal fluency test ( $p = 0.358$ ) and length of stay ( $p = 0.479$ ). The APACHE II severity score evaluated in the PO-ICU was  $14.13 \pm 6.47$ , and there was also no correlation with the TSS ( $p = 0.178$ ). The TSS in the PO-ICU did not show significant correlations with gender ( $p = 0.423$ ), age ( $p = 0.414$ ), marital status ( $p = 0.493$ ), years of education ( $p = 0.891$ ) and length of stay ( $p = 0.615$ ).

In the CO-ICU, the ten major stressors, followed by the corresponding mean scores and standard deviations, included "being in pain" ( $3.63 \pm 0.80$ ), "being unable to fulfill family roles" ( $3.37 \pm 1.12$ ), "being bored" ( $3.30 \pm 1.08$ ), "not being able to sleep" ( $3.07 \pm 1.23$ ), "having financial worries" ( $3.03 \pm 1.18$ ), "not being in control of

**Table 1 - Demographic and clinical characteristics**

Characteristics	CO-ICU (N = 30)	PO-ICU (N = 30)	p value
Age (years)	55.63 ± 13.59	53.60 ± 17.48	NS
Education (years of study)	5.63 ± 3.36	6.10 ± 4.03	NS
Male	20 (66.7)	16 (53.3)	NS
Lives with partner	17 (56.3)	19 (63.3)	NS
Active worker	10 (33.3)	11 (36.7)	NS
Reason for hospitalization			-
Acute myocardial infarction with ST elevation	13 (43.3)	---	
Unstable angina	11 (36.7)	---	
Acute myocardial infarction without ST elevation	6 (30.0)	---	
Intestinal neoplasms	---	9 (30.0)	
Myocardial revascularization	---	6 (23.3)	
Nephrectomy	---	5 (16.7)	
Thoracic arthrodesis	---	3 (10.0)	
Other	---	7 (23.3)	
Use of psychotropic drugs during hospitalization	10 (33.3)	11 (36.7)	NS
Main devices			
Heart monitor	26 (86.7)	26 (86.7)	NS
Peripheral access	25 (83.3)	28 (93.3)	NS
Length of stay (hours)	43.1 ± 15.27	44.3 ± 16.03	NS
Verbal fluency test score	16.45 ± 5.14	13.40 ± 3.07	0.007
Total stress score	104.20 ± 30.95	116.66 ± 23.72	NS

CO-ICU - coronary intensive care unit; PO-ICU - general postoperative intensive care unit; NS - non-significant. *Student's t* test or chi-square test. Results expressed as numbers (%) and means ± standard deviation.

**Table 2 - Stressor scores according to patient perceptions**

	Stressors	CO-ICU	PO-ICU	p value
		Mean ± SD	Mean ± SD	
1	Being restricted by tubes/lines	2.00 ± 1.23	2.63 ± 1.18	0.313
2	Not having the nurse introduce themselves	1.87 ± 1.43	2.27 ± 1.28	0.351
3	Feeling the nurse is in too much of a hurry	1.57 ± 1.07	2.37 ± 1.18	0.292
4	Being thirsty	0.97 ± 1.24	2.87 ± 1.43	0.346
5	Having your blood pressure taken several times a day	1.40 ± 0.96	1.47 ± 0.90	0.241
6	Having an uncomfortable bed or pillow	1.73 ± 1.53	2.33 ± 1.24	0.360
7	Hearing the telephone ring	0.53 ± 0.81	1.17 ± 1.08	0.248
8	Being frequently examined by a doctor or nurse	1.03 ± 0.18	1.43 ± 0.81	0.153
9	Having strange machines around you	1.59 ± 1.04	1.90 ± 1.02	0.267
10	Feeling the nurses are watching the machines closer than they are watching you	1.83 ± 1.20	1.77 ± 1.13	0.826
11	Hearing the buzzers and alarms from the machinery	2.03 ± 1.27	2.37 ± 1.21	0.304
12	Nurses and doctors talking too loud	1.80 ± 1.15	2.20 ± 1.06	0.169
13	Having to use oxygen	1.60 ± 1.47	1.83 ± 1.41	0.535
14	Missing your husband or wife	2.70 ± 1.53	2.67 ± 1.34	0.929
15	Not having treatments explained to you	2.47 ± 1.67	2.77 ± 1.19	0.428
16	Hearing your heart monitor alarm go off	1.53 ± 1.47	2.03 ± 1.32	0.173
17	Having nurses constantly doing things around your bed	1.13 ± 0.43	1.60 ± 0.89	0.013

Continue...

## ... continuation

18	Having tubes in your nose or mouth	1.53 ± 1.77	2.33 ± 1.62	0.495
19	Not knowing what time it is	1.97 ± 7.29	1.03 ± 1.45	0.074
20	Hearing other patients moaning	2.07 ± 1.57	2.40 ± 1.45	0.398
21	Having men and women in the same room	1.70 ± 1.57	1.30 ± 1.46	0.313
22	Only seeing family and friends for a few minutes each day	2.70 ± 1.36	2.63 ± 1.27	0.846
23	Not knowing when the medical procedures will be performed on you	2.23 ± 1.33	2.73 ± 1.23	0.136
24	Being awakened by nurses	1.47 ± 1.04	1.90 ± 1.21	0.143
25	Hearing unfamiliar sounds and noises	2.37 ± 1.35	1.70 ± 1.17	0.046
26	Watching treatments being given to other patients	1.33 ± 0.95	1.40 ± 0.96	0.790
27	Having to look at the details of the ceiling	2.20 ± 1.37	2.39 ± 1.18	0.617
28	Not being able to sleep	3.07 ± 1.23	3.20 ± 1.03	0.651
29	Not being able to move your hands or arms because of intravenous lines	2.63 ± 1.32	2.97 ± 1.03	0.282
30	Being aware of unusual smells around you	2.07 ± 1.68	2.47 ± 1.35	0.315
31	Having lights on constantly	2.67 ± 1.44	3.00 ± 1.14	0.326
32	Being in pain	3.63 ± 0.80	3.60 ± 0.67	0.863
33	Seeing intravenous bags over your head	1.40 ± 1.13	1.53 ± 1.04	0.637
34	Being stuck with needles	2.50 ± 1.19	2.83 ± 1.23	0.293
35	Not knowing where you are	2.20 ± 1.62	2.53 ± 1.43	0.403
36	Having nurses use words you cannot understand	1.87 ± 1.43	2.27 ± 1.28	0.259
37	Not being in control of yourself	3.00 ± 1.14	2.83 ± 1.20	0.585
38	Not knowing what day it is	1.40 ± 1.45	1.47 ± 1.43	0.859
39	Being bored	3.30 ± 1.08	3.10 ± 1.02	0.467
40	Having no privacy	2.73 ± 1.33	3.17 ± 1.20	0.193
41	Being cared for by unfamiliar doctors	1.57 ± 1.00	1.93 ± 1.20	0.205
42	Being in a room that is too hot or too cold	2.50 ± 1.25	3.07 ± 1.11	0.069
43	Hearing people talk about you	2.77 ± 1.27	1.87 ± 1.10	0.005
44	Not being able to communicate	2.90 ± 1.09	3.23 ± 1.07	0.238
45	Being afraid of dying	2.13 ± 1.40	2.20 ± 1.40	0.855
46	Not knowing the length of stay in the ICU	2.67 ± 1.29	2.60 ± 1.30	0.843
47	Being unable to fulfill family roles	3.37 ± 1.12	3.60 ± 0.85	0.371
48	Having financial worries	3.03 ± 1.18	2.87 ± 1.33	0.611
49	Being afraid of catching AIDS	2.77 ± 1.47	3.20 ± 1.21	0.220
50	Being pressured to consent to treatments	2.17 ± 1.31	2.13 ± 1.19	0.919

CO-ICU - coronary intensive care unit; PO-ICU - general postoperative intensive care unit; SD - standard deviation.

yourself” (3.00 ± 1.14), “not being able to communicate” (2.90 ± 1.09), “hearing people talk about you” (2.77 ± 1.27), “being afraid of catching AIDS” (2.77 ± 1.47), and “only seeing family and friends for a few minutes each day” (2.70 ± 1.36).

In the PO-ICU, the ten most stressful factors, expressed as mean scores and standard deviations, included “being in pain” (3.60 ± 0.67), “being unable to fulfill family roles” (3.60 ± 0.85), “not being able to communicate” (3.23 ± 1.07), “not being able to sleep” (3.20 ± 1.03), “being afraid

of catching AIDS” (3.20 ± 1.21), “having no privacy” (3.17 ± 1.20), “being bored” (3.10 ± 1.02), “being in a room that is too hot or too cold” (3.07 ± 1.11), “having lights on constantly” (3.00 ± 1.14), and “not being able to move your hands or arms because of intravenous lines” (2.97 ± 1.03).

There were no comments regarding the assessment tool, and only two patients suggested stressors to be included in the questionnaire: “not having an adequate place to store personal items” and “lack of a trashcan to dispose of common trash”.



## DISCUSSION

The main finding of this study was that, regarding stressors evaluated by the TSS, patients from the two different ICUs and with different clinical conditions had similar stress levels. This finding corroborates the study by Novaes et al.,<sup>(2)</sup> which evaluated 50 patients from a general ICU and did not find a significant correlation between the TSS of each patient and the treatment type, i.e., whether clinical or surgical.

Regarding the perception of stressors separately among ICUs, the results revealed that of the ten main stressors mentioned, six were equivalent in the two groups evaluated. Such similarities between the groups may be partially justified by the fact that the bed distribution and the operational setting were similar between both ICUs because all rooms had one or two beds, equipped with the same furniture, beds and pillows, in addition to clocks and individual lamps. Moreover, the main stressors identified in this study only partially reinforce data found in the literature, which names “being in pain”, “not being able to sleep”, “not being in control of yourself”, “having tubes in your nose or mouth” and “being restricted by tubes/lines” as the most stressful factors.<sup>(2,11)</sup>

The last two aforementioned factors were not reported in the present study as major stressors, which contradicts other studies.<sup>(11-13,15,16)</sup> This fact can be explained by characteristics of the sample, as only a few patients were on mechanical ventilation during hospitalization and, when they were, it was for a short time. The patients hospitalized in the CO-ICU who were included in the study had cardiac changes with indications for investigation or for conservative approaches or were in the preoperative periods of surgical interventions. In these cases, invasive mechanical ventilation is not used often. In addition, most of the patients included in the study were not using nasogastric feeding tubes or bladder catheters, lines, supplementary oxygen, colostomy bags or gastrostomy.

The stressor “being in pain” was the main factor reported in both ICUs and was also considered one of the major stressors in previous studies.<sup>(2,10,11,13-15)</sup> The pain perception may be a result of the clinical condition of the patient and the procedures performed and may be intensified by the ICU setting itself.<sup>(17)</sup> In addition, pain without relief combined with anxiety may trigger a severe agitation condition and subsequent accidental removal of patient care devices, putting patients at risk. Thus, analgesia and sedation are administered to provide comfort and to ensure patient safety while decreasing the stress response.

However, excessive sedation often occurs and is associated with increased mechanical ventilation and ICU hospitalization time, increasing the probability of patients developing cerebral dysfunction. A study that evaluated the relationship between sedation and the memories reported by patients after ICU discharge revealed that patients who were deeply sedated were more likely to have illusory memories. In addition, memories of nightmares and hallucinations were a source of discomfort during the ICU stay; most of the time, such experiences were associated with situations experienced during hospitalization in the ICU.<sup>(24)</sup> Thus, to optimize patient care and comfort and to minimize the deleterious effects associated with pharmacotherapy, healthcare professionals should achieve the right balance between the administration of analgesic and sedative drugs.<sup>(25)</sup>

Among the items that exhibited significant differences in mean scores when the studied ICUs were compared, “hearing unfamiliar sounds and noises” is the most relevant item for the discussion, exhibiting a higher mean score in the CO-ICU compared to the PO-ICU. Bridi et al.<sup>(26)</sup> evaluated several issues associated with monitoring alarms in a coronary unit and reported a total mean of 10.6 alarms/hour. Another study,<sup>(18)</sup> conducted with 32 clinical cardiac patients in a CO-ICU, reported that the noise level measured was above that established by standards of the Brazilian Association of Technical Standards (*Associação Brasileira de Normas Técnicas - ABNT*). In this study, there was a correlation between the stressor regarding noise perception and the total score obtained by the Intensive Care Unit Environmental Stressor Scale (ICUESS).<sup>(18)</sup> Thus, the noise level represents one of the main factors responsible for increased stress perception, causing some discomfort to hospitalized patients due to difficulties getting rest and the impossibility of sleeping properly.<sup>(27)</sup>

Although no significant correlation was identified between TSS and age in the present study, Heidemann et al.<sup>(18)</sup> reported a correlation between these variables, suggesting that the younger the individual is, the greater the perception of the intensity of stressors. Elderly patients seem to have higher tolerance levels for discomfort and inconveniences when hospitalized.<sup>(13-15)</sup> However, other studies<sup>(2,14-16)</sup> reported similar results to ours because they did not show a significant correlation between patient TSSs and age, gender, education level, marital status and disease severity. In the present study, the use of psychotherapeutic drugs was also not correlated with the perception of stressors. In contrast, a study conducted with 43 patients in a CO-ICU observed that patients who received anxiolytic drugs reported lower stress intensity.<sup>(14)</sup>

Some stressors are modifiable. Therefore, it is extremely important that the multidisciplinary team of the ICU be involved in strategies that can minimize stressors. Puntillo et al.<sup>(28)</sup> conducted a study in which simple measures were implemented to minimize the thirst and dry mouth sensations of 252 patients hospitalized in the ICU. The authors observed that using wet tissues on the lips, cold water sprays and lip moisturizers were practical and inexpensive measures able to minimize the stress associated with thirst among this population. In the present study, thirst tended to be more stressful in the PO-ICU, despite not having a very high score.

The fact that “not being able to communicate” was among the ten most stressful factors in both evaluated ICUs surprised the authors because most of the patients studied did not use an endotracheal tube. The authors believe that this finding is associated with difficulty in communicating with relatives and friends because this contact usually occurred only during visiting hours. In addition, the present study showed that many patients of the studied sample were “afraid of catching AIDS”, a finding not reported in similar studies. This fact may indicate the poor knowledge among the studied population regarding the mandatory use of sterilized material for invasive procedures. These findings reinforce the importance of including pleasant conversations between the multidisciplinary team and the patients in the midst of the busy intensive care routine to decrease the levels of patient anxiety and stress. Thus, implementing

measures that eradicate modifiable stressors and minimizing non-modifiable stressors may optimize humanization in the intensive care environment and facilitate achieving the therapeutic objectives proposed for this population.

A limitation of this study concerns the small sample size and its non-consecutive nature. This limitation may be explained mainly by the fact that the researchers involved are not part of the clinical staff of the hospital, which partially restricted the sequential access to hospitalized patients. Another limitation was the fact that few patients included were mechanically ventilated. Thus, generalizing the results found to every critically ill patient may be a mistake. Despite these limitations, the inclusion of conscious patients was essential for allowing the response to the applied questionnaire to reach the proposed objective. This decision excluded many patients and selected those who most likely had less severe conditions and, consequently, could have been exposed to smaller amounts and lower intensities of stressors.

## CONCLUSION

The total stress score were similar between patients in the coronary intensive care unit and the general postoperative intensive care unit. The two main stressors identified in both units were “being in pain” and “being unable to fulfill family roles”. In addition, there were no correlations between the total stress score and clinical patient data in any of the intensive care units evaluated.

## RESUMO

**Objetivo:** Avaliar e comparar os fatores estressantes identificados pelos pacientes de uma unidade de terapia intensiva coronariana com aqueles percebidos pelos pacientes de uma unidade de terapia intensiva pós-operatória geral.

**Métodos:** Estudo transversal, descritivo, realizado na unidade de terapia intensiva coronariana e na unidade de terapia intensiva pós-operatória geral de um hospital privado. Participaram 60 pacientes, sendo 30 de cada unidade de terapia intensiva. Para identificação dos fatores estressantes, utilizou-se a escala de estressores em unidade de terapia intensiva. Foram calculados o escore médio de cada item da escala e, em seguida, o escore total de estresse). Após a comparação entre os grupos, as diferenças foram consideradas significantes quando  $p < 0,05$ .

**Resultados:** A idade dos pacientes da unidade de terapia intensiva coronariana foi de  $55,63 \pm 13,58$  e da unidade de terapia intensiva pós-operatória geral foi de  $53,60 \pm 17,47$  anos. Os principais estressores para a unidade de terapia intensiva coronariana foram “sentir dor”, “estar incapacitado para exercer o papel na família” e “estar aborrecido”. Para a unidade de

terapia intensiva pós-operatória geral foram “sentir dor”, “estar incapacitado para exercer o papel na família” e “não conseguir se comunicar”. A média do escore total de estresse na unidade de terapia intensiva coronariana foi de  $104,20 \pm 30,95$  e, na unidade de terapia intensiva pós-operatória geral, foi de  $116,66 \pm 23,72$  ( $p = 0,085$ ). Comparando cada fator estressante separadamente, houve diferença estatisticamente significativa apenas entre três itens. “Ter a enfermagem constantemente fazendo tarefas ao redor do leito” foi mais estressante para a unidade de terapia intensiva pós-operatória geral do que para a unidade de terapia intensiva coronariana ( $p = 0,013$ ). Por outro lado, os itens “escutar sons e ruídos desconhecidos” e “ouvir pessoas falando sobre você” foram mais estressantes para a unidade de terapia intensiva coronariana ( $p = 0,046$  e  $0,005$ , respectivamente).

**Conclusão:** A percepção sobre os principais estressores, bem como o escore total de estresse foi semelhante entre a unidade de terapia intensiva coronariana e a unidade de terapia intensiva pós-operatória geral.

**Descritores:** Cuidados críticos; Estresse; Humanização da assistência; Período pós-operatório; Unidades de terapia intensiva; Unidades de cuidados coronarianos

## REFERENCES

1. Brasil. Ministério da Saúde. Secretaria de Vigilância Sanitária. Portaria nº 466, de 04 de Junho de 1998. Propõe Portaria que estabeleça o Regulamento Técnico para Funcionamento dos Serviços de Tratamento Intensivo. Brasília, DF: Ministério da Saúde; 1998.
2. Novaes MA, Aronovich A, Ferraz MB, Knobel E. Stressors in ICU: patients' evaluation. *Intensive Care Med.* 1997;23(12):1282-5.
3. Biancofiore G, Bindi ML, Romanelli AM, Urbani L, Mosca F, Filipponi F. Stress-inducing factors in ICUs: what liver transplant recipients experience and what caregivers perceive. *Liver Transpl.* 2005;11(8):967-72.
4. Costa JB, Felicetti CR, Costa CR, Miglioranza DC, Osaku EF, Versa GL, et al. Fatores estressantes para familiares de pacientes criticamente enfermos de uma unidade de terapia intensiva. *J Bras Psiquiatr.* 2010;59(3):182-9.
5. Gądek-Michalska A, Tadeusz J, Rachwalska P, Bugajski J. Cytokines, prostaglandins and nitric oxide in the regulation of stress-response systems. *Pharmacol Rep.* 2013;65(6):1655-62.
6. Faria RS, Moreno RP. Delirium na unidade de cuidados intensivos: uma realidade subdiagnosticada. *Rev Bras Ter Intensiva.* 2013; 25(2):137-47.
7. Tate JA, Devito Dabbs A, Hoffman LA, Milbrandt E, Happ MB. Anxiety and agitation in mechanically ventilated patients. *Qual Health Res.* 2012;22(2):157-73.
8. Chen YJ, Jacobs WJ, Quan SF, Figueredo AJ, Davis AH. Psychophysiological determinants of repeated ventilator weaning failure: an explanatory model. *Am J Crit Care.* 2011;20(4):292-302.
9. Vesz PS, Costanzi M, Stolnik D, Dietrich C, Freitas KL, Silva LA, et al. Aspectos funcionais e psicológicos imediatamente após alta da unidade de terapia intensiva: coorte prospectiva. *Rev Bras Ter Intensiva.* 2013;25(3):218-24.
10. Cornock MA. Stress and the intensive care patient: perceptions of patients and nurses. *J Adv Nurs.* 1998;27(3):518-27.
11. Novaes MA, Knobel E, Bork AM, Pávao OF, Nogueira-Martins LA, Ferraz MB. Stressors in ICU: perception of the patient, relatives and health care team. *Intensive Care Med.* 1999;25(12):1421-6.
12. Gois CF, Dantas RA. Estressores em uma unidade pós-operatória de cirurgia torácica: avaliação da enfermagem. *Rev Latinoam Enferm.* 2004;12(1):22-7.
13. So HM, Chan DS. Perception of stressors by patients and nurses of critical care units in Hong Kong. *Int J Nurs Stud.* 2004;41(1):77-84.
14. Marosti CA, Dantas RA. Relação entre estressores e características sociodemográficas e clínicas de pacientes internados em uma unidade coronariana. *Rev Latinoam Enferm.* 2006;14(5):713-9.
15. Hweidi IM. Jordanian patients' perception of stressors in critical care units: a questionnaire survey. *Int J Nurs Stud.* 2007;44(2):227-35.
16. Bitencourt AG, Neves FB, Dantas MP, Albuquerque LC, Melo RM, Almeida AM, et al. Análise de estressores para o paciente em unidade de terapia intensiva. *Rev Bras Ter Intensiva.* 2007;19(1):53-9.
17. Bento DC, Prado AP, Gardenghi G. Estudo dos níveis de estresse dos pacientes submetidos à angioplastia durante a internação na unidade de terapia intensiva. *Rev Eletron Saúde Ciênc.* 2012;2(1):7-21.
18. Heidemann AM, Cândido AP, Kosour C, Costa AR, Dragosavac D. Influência do nível de ruídos na percepção do estresse em pacientes cardíacos. *Rev Bras Ter Intensiva.* 2011;23(1):62-7.
19. Silva LF, Machado RC, Silva VM, Posso MB. Estresse do paciente em UTI: visão de pacientes e equipe de enfermagem. *Enfermeria Global.* 2013;12(32):104-18.
20. Brucki SM, Malheiros SM, Okamoto IH, Bertolucci PH. Dados normativos para o teste de fluência verbal: categoria animais em nosso meio. *Arq Neuropsiquiatr.* 1997;55(1):56-61.
21. Sociedade Brasileira de Cardiologia. IV Diretriz da Sociedade Brasileira de Cardiologia sobre Tratamento do Infarto agudo do Miocárdio sem Supradesnível do Segmento ST. *Arq Bras Cardiol.* 2009;93(6 Supl 2):e179-e264.
22. Knaus WA, Draper EA, Wagner DP, Zimmerman JE. APACHE II: a severity of disease classification system. *Crit Care Med.* 1985;13(10):818-29.
23. Rosa BA, Rodrigues RC, Gallani MC, Spana TM, Pereira CG. Estressores em Unidade de Terapia Intensiva: versão brasileira do The Environmental Stressor Questionnaire. *Rev Esc Enferm USP.* 2010;44(3):627-35.
24. Costa JB, Marcon SS, Macedo CR, Jorge AC, Duarte PA. Sedação e memórias de pacientes submetidos à ventilação mecânica em unidade de terapia intensiva. *Rev Bras Ter Intensiva.* 2014;26(2):122-9.
25. Hughes CG, McGrane S, Pandharipande PP. Sedation in the intensive care setting. *Clin Pharmacol.* 2012;4:53-63.
26. Bridi AC, Silva RC, Farias CC, Franco AS, Santos VL. Tempo estímulo-resposta da equipe de saúde aos alarmes de monitorização na terapia intensiva: implicações para a segurança do paciente grave. *Rev Bras Ter Intensiva.* 2014;26(1):28-35.
27. Fonseca GG, Parciannello MK, Zamberlan C. Agentes estressores em unidade de tratamento intensivo coronariana e o cuidado humanizado de enfermagem. *Rev Enferm Cent Oeste Min.* 2013;3(2):654-61.
28. Puntillo K, Arai SR, Cooper BA, Stotts NA, Nelson JE. A randomized clinical trial of an intervention to relieve thirst and dry mouth in intensive care unit patients. *Intensive Care Med.* 2014;40(9):1295-302.