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## ORIGINAL ARTICLE

### PATIENT RECOVERY ASSESSMENT IN POST-OPERATIVE RECOVERY ROOM IN ABSENCE OF ANESTHETIC

### AVALIAÇÃO DA RECUPERAÇÃO DO PACIENTE NO PÓS-OPERATÓRIO NA AUSÊNCIA DE SALA DE RECUPERAÇÃO ANESTÉSICA

### EVALUACIÓN DE LA RECUPERACIÓN DEL PACIENTE EN EL POST-OPERATORIO EN LA AUSENCIA DE SALA DE RECUPERACIÓN ANESTÉSICA

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#### ABSTRACT

**Objective:** to identify changes in patients in the first hour in the postoperative ward in the hospital without anesthesia recovery room. **Method:** a descriptive study with a quantitative approach evaluating 152 patients from April to June 2011. For data collection, the adapted instrument was used. Data were processed and analyzed by the software Statistical Package for the Social Sciences (SPSS) version 19.0 for Windows. **Results:** the changes observed in the 1<sup>st</sup>, 30<sup>th</sup> and 60<sup>th</sup> minutes were hypothermia: 77.7% (118); tremors: 48.0% (73); pain: 31.0% (47); nausea and vomiting: 27.6% (42); pressure: 24.4% (37); saturation <92%: 12.5% (19). Although 83.5% (127) did not possess medical history, 21.1% (32) had Aldrete Index and Kroulik below 8 to get to the infirmary. The chi-square test between hypothermia and tremor was significant ( $p < 0.001$ ). The difference in pre and post-operative temperatures by the Wilcoxon test was significant at 5%. **Conclusion:** even in medium-sized surgeries in healthy patients under regional anesthesia, an ARR is necessary. **Descriptors:** Anesthesia Recovery Period; Postoperative Complications; Recovery Room.

#### RESUMO

**Objetivo:** identificar alterações em pacientes na primeira hora no pós-operatório em enfermaria, em hospital sem Sala de Recuperação Anestésica. **Método:** estudo transversal e descritivo com abordagem quantitativa em que foram avaliados 152 pacientes no período de abril a junho de 2011. Para a coleta de dados, utilizou-se um instrumento adaptado. Os dados foram processados e analisados pelo *software Statistical Package for the Social Science (SPSS) version 19.0 for Windows*. **Resultados:** as alterações observadas no 1º, 30º e 60º minutos foram: hipotermia: 77,7% (118); tremores: 48,0% (73); dor: 31,0% (47); náuseas e vômitos: 27,6% (42); hipertensão: 24,4% (37); saturação<92%: 12,5% (19). Embora 83,5% (127) não possuíssem antecedentes clínicos, 21,1% (32) apresentaram Índice de Aldrete e Kroulik abaixo de 8 ao chegar à enfermaria. O teste Qui-quadrado entre hipotermia e tremor foi significativo ( $p < 0,001$ ). A diferença de temperaturas pré e pós-operatórias pelo teste de Wilcoxon foi significativa em 5%. **Conclusão:** mesmo em cirurgias de médio porte em pacientes hígidos e sob anestesia locorregional, há necessidade de recuperação em SRA. **Descritores:** Período de Recuperação da Anestesia; Complicações Pós-Operatórias; Sala de Recuperação.

#### RESUMEN

**Objetivo:** identificar alteraciones en pacientes en la primera hora del post-operatorio en enfermería, en un hospital sin Sala de Recuperación Anestésica. **Método:** estudio transversal y descriptivo con enfoque cuantitativo en que fueron evaluados 152 pacientes en el período de abril a junio de 2011. Para la recolección de datos, se utilizó un instrumento adaptado. Los datos fueron procesados y analizados por el *software Statistical Package for the Social Science (SPSS) version 19.0 for Windows*. **Resultados:** las alteraciones observadas en el 1º, 30º y 60º minutos fueron: hipotermia: 77,7% (118); tremores: 48,0% (73); dolor: 31,0% (47); náuseas y vómitos: 27,6% (42); hipertensión: 24,4% (37); saturación<92%: 12,5% (19). A pesar 83,5% (127) no poseen antecedentes clínicos, 21,1% (32) presentaron Índice de Aldrete y Kroulik abajo de 8 al llegar a la enfermería. El test Chi-cuadrado entre hipotermia y tremor fueron significativos ( $p < 0,001$ ). La diferencia de temperaturas pre y post-operatorias por el test de Wilcoxon fue significativa en 5%. **Conclusión:** mismo en cirugías de medio porte en pacientes sanos y sobre anestesia loco-regional, hay necesidad de recuperación en SRA. **Descritores:** Período de Recuperación de la Anestesia; Complicaciones Post-Operatorias; Sala de Recuperación.

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## INTRODUCTION

Being in a surgical table is an act of maximum surrender. During the anesthetic-surgical procedure the control of the mind, the will, and the body are lost temporarily, which is under the responsibility of a group of people with a primary mission: to restore his former integrity. This restoration process occurs during the phase of post-anesthetic recovery when the professional team seeks to monitor, intentionally and meticulously, the emergence of anesthesia, that is, the return of control of the vital functions.

In this critical period, the anesthetic recovery room (ARR), place for intensive care, becoming even more relevant because of technological and anesthetic-surgical advances and statistics on the reduction of morbidity and mortality due to their use in Immediate Postoperative (IPO).<sup>1-2</sup>

In 1947, two studies brought contributions to stress the importance of ARR. In the first study, they analyzed 306 deaths in the IPO, having identified some risk factors: inadequate control of the patient, inadequate oxygenation, inadequate selection of the anesthetic agent, excessive administration of the anesthetic agent, clinical judgment errors, inadequate supervision, problems sedation and airway obstruction.<sup>1</sup> It is important to emphasize that these mortality rates would not have been avoided by better surgical techniques or anesthetic agents, but by the simple act of constant vigilance, the action of primary competence of nursing in this period.

After a surgical procedure, the patient is still under residual effects of anesthetic agents with metabolic imbalances resulting from surgical trauma, with frequent occurrence and major complications.<sup>3</sup> The most prevalent are: cardiorespiratory depression, neurological disorders, pain, hypothermia, nausea and vomiting and abdominal distension, often associated with preoperative clinical conditions, extent and type of surgery, anesthesia and surgical complications, among others.<sup>4,5,6</sup>

Therefore, it is justified the existence of ARR, with the presence of a competent nursing staff being essential to recognize the postoperative changes quickly and perform interventions promptly.<sup>7</sup> According to the association of anesthesiologists recommendations of England and Ireland, the standard of nursing and medical care should be equal in hospital intensive care units.<sup>2</sup>

In Brazil, a decree-law 1993 (Resolution of the Federal Council of Medicine 1.363/93)

provides that the post-anesthetic recovery period should take place in an appropriate place, designed with a multidisciplinary team of anesthesiologists and staff of skilled nursing. The Ministry of Health, by Decree 1884 of 1994 has then required the existence of ARR, with at least two beds, and the ideal number of beds depending on the types and demand of the planned surgery.<sup>8</sup>

On one hand, if it is required for decrees and resolutions that recovery occurs in an ARR; on the other hand, it is observed that many small hospitals, medium and even large does not have this specific location and recovery of patients is done in the operating room and then in the very ward where intensive monitoring becomes difficult.

Assessment protocols have been established to ensure minimum standards of care and criteria so that the patient is released from the ARR environment to another 7 Stability as the cardiological, vascular, respiratory aspects, with level of well-oriented awareness and without supplementary oxygen supply for a period of twenty minutes are criteria and guidelines established for the discharge of the ARR.<sup>7</sup> With respect to anesthesia, the patient may be discharged if he is awake, alert and oriented in space and time, able to maintain adequate alveolar ventilation and unobstructed airway, maintaining adequate peripheral perfusion, not requiring continuous monitoring of cardiovascular system and have urinary output.

In addition to these criteria, the Surgical Nurses Center Society, Anesthetic Recovery, and Material and Sterilization Center (SOBECC) states that the patient must remain under constant surveillance until his complete recovery, that is to have the ability to keep his head elevated and held it; stable vital signs; be with clean, dry dressing; have minimal urine output of 30 milliliters per hour; maintain body temperature and active movement of the four limbs, with minimal bleeding or missing and no burning pain, nausea and vomiting.<sup>7</sup>

Faced with the paradox of the existence of rules and regulations for the use of criteria for ARR, the actual conditions in which the patient in IPO recovers in an institution where there is no such support is questioned- a common occurrence in the Brazilian reality. This study aimed to identify the changes made by patients in the postoperative period of a medium complexity without ARR in a hospital during the first hour of his recovery ward.

METHOD

Descriptive study with a quantitative approach carried out in a secondary General Hospital, of medium size, situated in the north of Paraná, with 52 beds, with an average of 150 surgeries per month. The Surgical Center has three operating rooms and has one nurse, three assistants, and one anesthesiologist. At the hospital there is no ARR, and the patient at the end of surgery, remains in the operating room, under the observation of anesthesiologists, nurses and assistants, until the anesthesiologist release him to the inpatient unit, and after the release, patient is still awaiting transport in the Surgical Center hallway or anteroom.

The population consisted of 385 patients, and the sample was of 152 patients according to the following inclusion criteria: undergoing surgery on predetermined days, from April to June 2011, over 18 years old; of both genders, undergoing surgery of different clinics under general anesthesia, spinal, epidural, sedation and who agreed to participate voluntarily in the study. Still preoperatively, patients were invited to participate, received an act of willingness information and signed the consent form.

To collect data, an adapted instrument<sup>9</sup> was used, developed and validated to include other parameters to be observed in patients in the postoperative period, in addition to proposing the Aldrete and Kroulik Index (IAK). The instrument was then composed of four parts: 1) patient identification data; 2) Control of vital signs, evaluation of pain intensity by numeric scale and evaluation of IAK; 3) infusions registration, the value of glucose eliminated liquids and identifying the type of cannulas, catheters, tubes, and drains; 4) patient behavior evaluation; respiratory, neurological, cardiovascular, digestive, renal systems and surgical incision. The Aldrete and Kroulik Index evaluates the following aspects: activity, respiration, circulation, consciousness, and oxygen saturation.

Once a patient from the operating room came to the inpatient unit, he was welcomed and accompanied by the researcher, who recorded the identification data based on medical records and evaluated the items indicated by the instrument. For the record vital signs, a calibrated multiparameter monitor was used that recorded: oxygen saturation, blood pressure, heart rate and breathing, temperature and cardiac monitoring. Then, he was evaluated by Aldrete scale and Kroulik and held up the

physical examination of the different systems indicated by the instrument. All items were reevaluated at 30 and 60 minutes. Physical examination of the different systems was performed at 1 and 60 subsequent minutes after reaching the hospital unit.

Data were processed and analyzed by the software Statistical Package for the Social Sciences (SPSS) version 19.0 for Windows. All variables underwent descriptive analysis; categorical variables were submitted to simple frequency analysis and continuous analyzed according to the measures of central tendency (mean and median) and dispersion (standard deviation).

An association was made between clinical variables with IAK used probability test (chi-square) to assess the association between tremor and hypothermia and to assess the difference in pre and postoperative temperatures, applied the nonparametric Wilcoxon test, considering a 5% significance level.

The study received approval opinion of the research project by the Ethics Committee under CAAE 0011.0.268.000-11.

RESULTS

The sample was composed of 152 patients, 75.0% (114) were female, aged between 18 and 87 years old (mean 39.03 years old and a median of 35.5). As for the clinical specialty, obstetrics led with 52.0% (79); then digestive tract, 25.0% (38); orthopedics, 16.4% (25); vascular 4.6% (7) and the other (plastic and ENT), 2.0% (3).

Among the patients, 83.5% (127) had a clinical history. Spinal anesthesia was the predominant type, with 79.6% (121), followed by general anesthesia with 9.9% (15). Sedation covered a total of 4.6% (7), local anesthesia with sedation 2.0% (3) and local combinations of the block, block with sedation and spinal anesthesia with sedation presented 1.3% (2) each.

In this study, the variable “transition time” refers to the interval between the end of the surgery until the patient’s arrival to the unit. The shorter transition time was 10 minutes. Thereafter, data were grouped from 15 to 15 minutes, and for 36.1% of the patients (55), the transition time was 10 to 25 minutes; 42.1% (64) of the patients had a range of time between 26 and 40 minutes; 15.1% (23) had an interval 41-55 minutes and 6.5% (10) remain to wait for 56-70 minutes before being forwarded to the unit. The average time of transition between the end of surgery and the arrival of the unit was 32.6 minutes. The time

of the end of surgery was obtained from the patient’s record. The period that the patient was only in the anteroom inside the operating room waiting for their transfer was not possible to evaluate.

The glucose measure was not carried out in any patient. There was a transfusion of packed red blood cells patients in 2.6% (4) of them. As for the eliminated liquid, there was a urine record in 23.0% (35) patients and hematuria in 6.6% (10). There were no patients with cannulas but was recorded

peripheral venous catheter in all of them. Only one patient used a nasogastric tube and one patient used Penrose drain. There were no reports of the use of elastic stockings or pneumatic massager because the institution does not have these resources. However, the number of patients with no clinical history of this study and the performance of low complexity surgeries were identified significant postoperative changes described in Table 1.

Table 1. Changes identified in patients in the postoperative period, the 1st, 30th and 60th minutes after arriving at the hospital ward - Rolândia-PR, 2012.

		1º minute		30º minute		60º minute	
Changes		n	%	n	%	n	%
Hypothermia		118	77.7	106	69.7	54	35.5
Tremors		73	48.0	65	42.8	34	22.4
Pain	Mild	105	69.0	94	61.8	92	60.5
	Moderate	27	17.8	30	19.7	41	27.0
	Intense	20	13.2	28	18.4	19	12.5
Nausea and vomiting		42	27.6	–	–	39	25.7
Hypertension		37	24.4	28	18.4	13	8.2
Saturation <92%		19	12.5	8	5.3	5	3.3
Hypotension		11	7.2	5	3.3	0	0.0
Tachycardia		10	6.6	6	3.9	6	3.9
Tachypnea		9	5.9	9	5.9	27	17.8
Agitation		8	5.3	–	–	7	4.6
Dressing appearance	Partially soaked in blood	38	25.0	–	–	35	23.0
	Totally soaked in blood	5	3.2	–	–	6	3.9

The changes most frequently found, in order of most frequently in the first minute, were: Hypothermia: 77.7% (118); Tremors: 48.0% (73); moderate or severe pain: 31.0% (47), considering from moderate to severe, and nausea and vomiting: 27.6% (n=42).

It was observed that the average temperatures recorded in 1 minute after the patient when reaching the infirmary were 35,2°C; 35,2°C median and standard deviation of 0.7013. The temperatures are recorded, 29.0% (44) were lower than 35°C, and 77.7% (118) patients had temperatures lower than 36°C. Of them, 57.6% (68) had tremors. The chi-square test between patients with hypothermia and tremors was statistically significant (p <0.001). To assess the difference in pre and post-operative temperatures, the nonparametric Wilcoxon test was applied and was significant at 5%.

As for pain, 31.0% (47) reported moderate to severe pain in the first minute after arriving in the ward; 38.1% (58) reported that same intensity in 30 minutes after reaching the ward and 39.5% (60) after 60 minutes. The percentage presented nausea and vomiting in 1 minute was 27.6% (42) and 25.6% (39) after 60 minutes.

The saturation was lower in 1 minute after the patient arrives at the unit in which registered lower saturation than 92.0% to 12.5% (19). In the 30<sup>th</sup> and 60<sup>th</sup> minutes, the findings were 5.3% (8) and 3.3% (5), respectively.

As for blood pressure, 24.4% of patients (37) had systolic BP greater than 140 in 1 minute. It was observed that 7.2% (11) showed hypotension, that is, systolic blood pressure less than 90. The average mean arterial pressure at 1 minute was 92.2; the median, 93.3 and standard deviation of 14.77. Agitation was present in 5.2% of patients (8) at 1 minute and 4.6% (7) in 60 minutes.

The IAK was less than 8 in 1 minute 21.1% (32) of patients, with a mean of 8.1 and a median of 8.0 and a standard deviation of 0.87. After 30 minutes, 9% (15) had IAK less than 8, the average being 8.3, and after 60 minutes, none of the patients had less than 8 IAK presented average of 9.1.

DISCUSSION

Most patients were characterized as having no medical history, which is consistent with the indication for surgery in a secondary hospital. This finding goes against a



prospective study of postoperative complications, where most complications occurred in healthy patients classified as ASA I and ASA II.<sup>10</sup>

Although 83.5% of patients (127) did not possess medical history, it was observed that 21.1% of them (32) had IAK below 8 to get to the inpatient unit. That is, if strictly consider the IAK as a parameter, these 32 patients should not be on an inpatient unit, but under continuous monitoring.

The literature suggests that ARR permanently is on average 30-120 minutes after surgical anesthesia, and the average length of an adult patient's stay in ARR has been 70 minutes, ranging 60-180 minutos<sup>4</sup> (Popov and PENICHE). However, it is questionable to establish predetermined periods to stay in ARR, since the patient should be evaluated individually.

In this study, the average time of the end of the surgery until the arrival to the inpatient unit, was 32.6 minutes average lower than recommended by the literature to be held in ARR (with surveillance and monitoring), and in 36.18 % of patients (n=55), the time between the end of surgery and the arrival to the ward was only 10-25 minutes.

One of the causes of increased recovery time and stay in ARR is hypothermia, defined by various authors such as body temperature below 36°C.<sup>11</sup> Factors related to hypothermia are exposure to the cold environment and altered metabolism (by the action of anesthetic drugs, patient's age and vasodilatation). It is seen in studies that over 60% of patients are experiencing hypothermia in the IPO at temperatures below 36°C, causing a discomfort feeling like the worst, even more than the period of hospitalization and surgical pain.<sup>1,11</sup>

Among the complications of hypothermia, there are highlighted the increased morbidity, the incidence of surgical site infection, the effect of anesthetic drugs and the demand for oxygen; cardiac system disturbances; impaired platelet function; hormonal changes and the presence of tremors.<sup>3,11</sup>

Of the patients who had the temperature record preoperatively, 9.9% had a temperature less than 36°C. The drop in temperature in the postoperative compared with preoperative in this study was significant, as demonstrated by the non-parametric Wilcoxon test. The percentage of hypothermia found was significant when compared to study found that hypothermia was observed in 23.4% of patients on admission to the ARR.<sup>12</sup>

When the recovery of the patient is in the ward - as in the researched hospital - there are no standards and protocols to instruct a constant evaluation of routine hypothermic patient, nor to use forms of heating recommended by the literature.<sup>11</sup>

In this study, it was associated with hypothermia tremors and chills, with statistically significant results. The metabolic cost of these tremors is high, increasing oxygen consumption by 300% to 800%, and the loss of 0.2°C temperature produces a small increase in oxygen consumption of 7%, while individuals with loss of higher temperature 3°C that has increased oxygen consumption up to 40%.<sup>13</sup> When increasing in oxygen consumption, it is necessary to oxygenate the patient, which usually does not happen.

It is observed that the number of oximeters is insufficient in the hospital searched, and there is no protocol for use in post-surgical patients. Although recommended, providing radiant heat by a thermal blanket to combat post-operative hypothermia has a significant cost. The cost-benefit of centralizing equipment in an ARR is therefore much more advantageous.

Postoperative pain has been the focus of studies and protocols that address their evaluation and management. However, the new findings of the pain mechanism and its consequences, as well as the development of new drugs and techniques have not significantly affected the statistics on the prevalence of pain in the immediate postoperative period.<sup>14</sup>

By the subjectivity involved in the interpretation of pain, the numerical scale self-reported by the patient is suitable to quantify and evaluate the intensity of pain.

Different studies assessed pain as frequent complication in the IPO, reported in 72.7% of patients in the postoperative period and presented in 50% of articles in a literature review as a frequent complication in anesthetic recovery period.<sup>14-15</sup>

The study found that the pain was present in 54% of patients in the IPO, and they demanded higher oxygen consumption. The IPO analgesia used to increase the drowsiness and, consequently, the need for more oxygen therapy.<sup>4</sup> In this study, it was found that the 18 patients who showed less than 92% saturation, 50% (9) had an average report of intense pain.

It is observed in this study that 31.0% (47) of the patients reported moderate to severe pain in 1 minute after reaching the ward, increasing to 38.1% (58) after 30 minutes after arriving at the ward and 39.5% (60), after 60

minutes, corroborating results of another study.<sup>5</sup>

This increase in the number of patients in pain with the passage of time can be explained by the dissipation of anesthetics and regain sensitivity. The SOBECC recommends releasing the patient of ARR when the patient presents comfortable or acceptable level of pain and verbalizes evidence of decreased pain and increased comfort with pharmacological and non-pharmacological interventions.<sup>7</sup> In this study, the patients arrived at the ward without having their pain controlled.

To individualize care, which focuses on patient safety, rational and individualized care, which is the responsibility nurse is required. This professional evaluates how each patient depends on the nursing actions, which should be compatible with the changes and needs.<sup>4</sup> Therefore, it is essential space where all the signs - including the pain as the fifth vital sign - are systematically and effectively evaluated and used as criteria for the high surgical environment.

The most common manifestations of morbidity associated with anesthesia are nausea and postoperative vomiting. Despite the emergence of more effective drugs for its control, its incidence remains between 20% and 30%.<sup>3</sup>

The etiology of nausea and vomiting is multifactorial involving patient-related factors, such as higher prevalence in female, smoking, obesity and factors related to surgery, such as type, location, and duration. Surgery ENT, dental, shoulder, and strabismus are associated with higher incidence.<sup>16</sup>

There are several consequences of nausea and vomiting - which can often slow patient discharge of the ARR or even from the hospital: tachycardia, hypertension, discontinuation of the oral feeding, increased intracranial and intraocular pressure, wound bleeding by increasing venous pressure and dehiscence of the suture lines, loss of fluids and electrolytes and aspiration pulmonary.<sup>16</sup> Therefore, it is recommended that when necessary, the responsible anesthesiologist prescribes antiemetics and analgesics for the patient during the post-anesthetic recovery.<sup>7</sup>

Although most studies indicate relatively low incidence, study<sup>3</sup> identify the occurrence of nausea and vomiting as the second most frequent complication in ARR, 23.5%. The reality of postoperative in hospitals where there is no ARR hinders the team to realize that the patient is affected by nausea and vomiting, as he recovers in his room, often without the necessary supervision. For

SOBECC and ASPAN, the high status of the ARR patient includes the absence of nausea and vomiting,<sup>seven</sup> which was not observed in this study.

Another factor was researched oxygen supply. Hypoxemia is the reduction of oxygen in arterial blood, venous or capillary when the patient may experience rapid and full pulse, blood pressure, cyanosis, agitation and tachycardia followed by bradycardia. It may cause hypoventilation, which is by CNS depression caused by painkillers and anesthetics and the residual effects of neuromuscular blockers, remembering that pain can also generate hypoventilation by the difficulty of chest expansion.<sup>7</sup>

In this study, less saturation than 92.0% in 12.5% (19) in the first minute was found, communicated to the nurse responsible for the sector that began oxygen therapy. Thus, the following assessments, the low saturation was not identified, which possibly would not have happened in a routine situation in the unit, it does not have a pulse oximeter for all patients.

In a study in the IPO, with patients undergoing surgery with a higher percentage of general anesthesia, it was found that 64.9% (50) required supplemental oxygen to maintain a higher saturation than 90%.<sup>11</sup> This can be explained by the size of the surgery and the choice of anesthesia - most spinal anesthesia with lower respiratory compromise. Despite the low incidence, it was significant for the 19 patients (12.5%) who were in the infirmary without monitoring required to support intervention.

Shortages oximeters, observed in most hospital units hinder to monitor the oxygen saturation, increasing the risks to the patient in the immediate postoperative period.

To evaluate the difference between the average pressures between the pre and postoperative period, there was the nonparametric Wilcoxon test, and there was no significant difference in mean blood pressure before and in the first minute after surgery. Variations in blood pressure in the IPO depend on comorbidities, ASA classification, the presence of intraoperative bleeding, surgical time, age, among others. Most subjects in this study were patients without comorbidities and subjected to low complexity surgery, which contributed not to meet major changes related to blood pressure.

The main causes of hypertension in the IPO are increased pain, bladder distention, hypoxemia, hypothermia, cardiovascular surgery and drugs used in anesthesia.

Emotional disorders, obesity, excessive intake of alcohol and coffee, tobacco and stimulants also influence, reaching even to suspend the surgery.<sup>7</sup>

Hypotension is another very common postoperative complication and potentially dangerous to cause hypoperfusion of vital organ systems, and complications include ischemia or myocardial infarction, brain, kidney tubules, spinal cord, and intestine. Hypotension is defined as a decrease in systolic blood pressure below 90 mmHg or less than 20% of blood pressure control. The most common causes are pre hypovolemia or during surgery, hypnotics (absolute or relative overdose), halogenated (myocardial depression and vasodilation), muscle relaxants (ganglionic blocking or release of histamine) and spinal blocks (vasoplegia).<sup>7</sup>

Although it is a common complication in the postoperative period, the percentage was not higher (7.2%) when compared to another study in which the incidence of hypotension was 16.9% (n=13) in the first 15 minutes.<sup>12</sup>

In this study, the agitation was present in 5.3% (8) in the first minute, which may indicate systemic dysfunctions essential and deserves careful investigation. It results not only from the effects of anesthesia but also pain, cold and bloating. It is positively assuaged by routine intervention: constant monitoring of vital signs, pulse oximetry, heating, elevadas.4 grids When recovery occurs inwards, as in the case of the researched hospital, it is difficult to observe and intervene in the case of unrest.

Besides the need for criteria for evaluation and discharge, nursing care should be documented. An index today is based the world is the Aldrete Index and Kroulik, despite receiving important criticism not to assess all the important criteria for ARR discharge properly. It is a scale of 0 to 10, which analyzes muscle activity, respiration, circulation, consciousness, and oxygen saturation, and the total score for discharge is 8 to 10.<sup>7,12</sup>

The average values found in the first minute IAK of this study were 8.0, SD=0.87 - going to meet another study in which the mean value for adult patients was 8.3, and, to 0 minutes 53.3% of patients had from 6 to 8 points, showing changes from 2 to 4 in a physiological signal measured by the index. After 30 minutes, 76.7% had grade between 9 and 10 points, meaning only one change with note 1 and in 60 minutes, 95.5% of patients had between 9 and 10 points.<sup>17,18</sup>

In assessing the present study IAK in the first minute, the values were close to those

found by other authors. It happens that this score was observed when the patient arrived at the unit and must then be compared with the average obtained in high reported by the study mentioned above. In doing so, we see that the average was below the results found in the literature. It is noteworthy the high incidence of hypothermia, severe pain and tachypnea found in this study, factors not measured by Aldrete and Kroulik Index.

## CONCLUSION

This study indicates, in a preliminary way, that even the sample being composed, mostly, by many patients without comorbidities and undergoing minor surgery, they are at risk to be sent directly to the inpatient unit.

It is noteworthy that, considering only the IAK, without considering other important criteria not covered by the scale, 32 patients (21.1%) should not be on the inpatient unit during post-anesthetic recovery.

The results from this study were relevant for raising reflections on the importance of having a place for the recovery room, equipped with specific materials and human resources to the intensive care required at this stage. It is strongly recommended that health institutions comply with the norms and guidelines as to the existence of ARR, the presence of trained and competent multidisciplinary team and usage parameters, criteria and high ranges.

It is suggested that new studies in tertiary institutions where there is no ARR in that assess patients in major surgeries IPO under general anesthesia and presenting comorbidities. It is suspected that the complications picture found under these conditions - and the usual routine in Brazilian hospitals - would be even more serious than the one found in this study.

The reinstatement of the completeness of the patient is our responsibility and caring for this to happen, our mission. Promoting a safe environment for the physical, human and materials for proper surgical-anesthetic recovery should be concern and responsibility of both the care team as managers of health institutions.

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