

Patients in the immediate postoperative period: admission to the clinical and surgical unit

Pacientes em pós-operatório imediato: recepção na unidade clínico-cirúrgica Pacientes en el postoperatorio inmediato: admisión en la unidad clínico quirúrgica

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Abstract

Objective: To analyze the nursing demand in the care of patients in the immediate postoperative period, from their admission to the surgical center to their accommodation in bed in the admission unit. Methods: Prospective and analytical study. The population consisted of adult patients, discharged from the surgical center. The sample was calculated considering that the service performs an average of 118 surgeries per month. Considering that the minimum sample would be 91 patients at a 95% confidence interval, we chose to work with a sample of 100 patients. Data were collected at the time patients were received from the PACU. Results: The Angiology, Coloproctology, Otorhinolaryngology and Urology surgical groups required a maximum of two nursing professionals. The Head and Neck Surgery, Plastic Surgery, Nephrology and Orthopedics groups required at least two professionals. The Coloproctology group had a higher average time of accommodation in bed. About 15% of the patients required oxygen therapy, almost 50% received analgesics and 34% were using an indwelling urinary catheter. Conclusion: The time allocated to the accommodation of patients ranged from 5 to 30 minutes, with an average of 15.19 ± 4.7 . There are no indications that a greater or lesser number of professionals acting together alter the accommodation time of the patient.

Descriptors: Patient admission; Patient transfer; Nursing care; Perioperative nursing.

Whats is already known on this?

The current literature presents care for patients in the immediate postoperative period specifically in the Post-Anesthetic Recovery Room. We looked for articles about the immediate postoperative period in the surgical hospitalization unit and we did not find them.

What this study adds?

It enhances and adds information about patients in the immediate postoperative period in the clinical-surgical hospitalization unit, contributing mainly with undergraduate Nursing students.



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Resumo

Objetivo: Analisar a demanda de enfermagem nos cuidados de pacientes em pós-operatório imediato, desde sua recepção do centro cirúrgico até sua acomodação ao leito na unidade de internação. Métodos: Estudo prospectivo e analítico. A população foi constituída por pacientes adultos, egressos do centro cirúrgico. A amostra foi calculada considerando-se que o serviço realiza uma média de 118 cirurgias ao mês. Considerando que a amostra mínima seria de 91 pacientes com um intervalo de confiança de 95%, optouse por trabalhar com amostra de 100 pacientes. Os dados foram coletados no momento em que os pacientes eram recebidos da SRPA. Resultados: Os grupos cirúrgicos Angiologia, Coloproctologia, Otorrinolaringologia e Urologia demandaram no máximo dois profissionais de enfermagem. Os grupos de Cirurgia de Cabeça e Pescoço, Cirurgia Plástica, Nefrologia e Ortopedia demandaram pelo menos dois profissionais. O grupo da Coloproctologia teve maior média de tempo de acomodação ao leito. Cerca de 15% dos pacientes demandaram oxigenoterapia, quase 50% receberam analgésicos e 34% estavam usando cateter vesical de demora. Conclusão: O tempo destinado à acomodação dos pacientes variou de 5 a 30 minutos, com média de 15,19 ± 4,7. Não há indícios de que mais ou menos profissionais atuando juntos alterem o tempo de acomodação do paciente.

Descritores: Admissão do paciente; Transferência do paciente; Cuidados de enfermagem; Enfermagem perioperatória.

Resumén

Objetivo: Analizar la demanda de enfermería en la atención los pacientes en el postoperatorio inmediato, desde su admisión en el centro quirúrgico hasta su acomodación en cama en la unidad de admisión. Métodos: Estudio prospectivo y analítico. La población estuvo constituida por pacientes adultos, dados de alta del centro quirúrgico. La muestra se calculó considerando que el servicio realiza un promedio de 118 cirugías al mes. Considerando que la muestra mínima sería de 91 pacientes con un intervalo de confianza del 95%, se optó por trabajar con una muestra de 100 pacientes. Los datos se recopilaron en el momento en que se recibieron los pacientes de la URPA. Resultados: Los grupos quirúrgicos de Angiología, Coloproctología, Otorrinolaringología y Urología requirieron un máximo de dos profesionales de enfermería. Los grupos de Cirugía de Cabeza y Cuello, Cirugía Plástica, Nefrología y Ortopedia requerían al menos dos profesionales. El grupo de Coloproctología tuvo mayor tiempo promedio de acomodación en la cama. El 15% de los pacientes requería oxigenoterapia, casi el 50% recibía analgésicos y el 34% utilizaba sonda vesical permanente. Conclusión: El tiempo destinado a la acomodación de los pacientes osciló entre 5 y 30 minutos, con un promedio de $15,19 \pm 4,7$. No hay indicios de que un mayor o menor número de profesionales actuando en conjunto alteren el tiempo de acomodación del paciente.

Descriptores: Admisión de pacientes; Traslado de pacientes; Atención de enfermeira; Enfermería perioperatoria.

INTRODUCTION

The so-called immediate postoperative period (IPO) is considered from the moment the patient is discharged from the operating room until 12 to 24 hours after the end of the surgery.¹ The needs of the patient may have different priorities according to the postoperative period he/she is going through. In the IPO, the patient is considered critical, which is why there must be systematized and documented nursing care, ensuring safety and specific care.²

When a person is submitted to a surgical intervention, several discomforts occur, the most common being stress and anxiety, due to the occurrence of the surgical act. Thus, nursing care must be comprehensive, individualized and systematically planned, with a view to minimizing the risks of complications that may occur as a response to traumas (anesthetic and surgical).³

It is worth remembering that responses to traumas vary among patients. In the IPO, the patient lacks an intervention plan in which the nurse can, based on the obtained data, promote a full recovery.⁴ A study with the objective of analyzing and classifying nursing failures during the care of patients in the immediate postoperative period stands out, where the author detected that failures were caused by lack of definition of the role of the members of the nursing team, poor training, unsystematic observation, as well as physical and equipment inadequacy.⁵ Added to this, it is noticed that studies on patients going through the IPO generally refer to care in the post-anesthesia care unit (PACU).⁶⁻⁷

Thus, this study had the objective of analyzing the nursing demand in relation to the care of patients in the immediate postoperative period, on the occasion of their reception in the surgical center, until their complete accommodation to the bed in the surgical and clinical admission unit.

METHODS

This is a prospective and analytical study, carried out in a public hospital in Minas Gerais, in the Surgical Admission Unit, divided into South and East Wings, during the year 2019. The population consisted of adult patients undergoing surgeries and discharged from the surgical center. In the hospital setting for this research, hemodynamic stabilization of newly operated patients occurs in the PACU, and they are released to the admission unit when clinically stable.

The population consisted of patients undergoing surgeries, on the occasion of their return from the Surgical Block to the Surgical Admission Unit. The sample was calculated considering that the service

performs an average of 118 surgeries per month. Considering that the minimum sample would be 91 patients at a 95% confidence interval, we chose to work with a sample of 100 patients (Results from OpenEpi, Version 3, SSPropor open source calculator). Patients who refused to participate in the research and patients under 18 years of age were excluded, totaling six patients. Patients transferred from the PACU to the Intensive Care Unit (ICU) were not included in the survey, that is, patients who did not return to the Surgical Admission Unit after surgery.

In the IPO, the approach to the patient occurred when he/she was admitted to the clinical and surgical admission unit, discharged from the surgical center, on the occasion of the accommodation of this patient in bed. In this work, the term "patient accommodation" was considered the set of immediate actions to comfort the patient discharged from the surgical center and ensure safety measures: passage of the transport stretcher to the bed, positioning in the bed, positioning of devices (intravenous hydration bags, urine collector and oxygen therapy devices), control of vital parameters (vital signs and pulse oximetry), pain scale assessment, analgesic administration (if necessary), type of analgesic administered, intravenous (IV) hydration exchange (when prescribed by the physician) and assessment of the surgical wound (SW) dressing.

In order to collect data, we designed an instrument containing sociodemographic variables and the surgical group to which they belonged (Urology, Head and Neck Surgery, Coloproctology, Orthopedics, Gastroenterology, Gynecology, Otorhinolaryngology, Nephrology, Plastic Surgery, Angiology and others). The following variables were also sought: admission ward, type of anesthesia, duration of surgery, vital signs, pulse oximetry, use of devices, need for analgesia, conditions of SW dressing, preparation of stomata during surgery, number of nursing professionals required to accommodate the patient and time (in minutes) spent on this.

Data were entered into the Excel program. Analyses were performed using the R software (https://www.r-project.org/). In order to perform the descriptive analysis, absolute and relative frequencies of qualitative variables were calculated. For quantitative variables, calculations of absolute and relative frequencies were performed, as well as measures of central tendency and dispersion. Pain was assessed using a visual analogue (VAS)⁸ pain scale, which had the objective of measuring pain intensity in numerical values. In probability and statistics, correlation, dependence or association refers to any statistical relationship (causal or non-causal) between two variables, when one of them is in some way related to the other. It was asked: is there a correlation between the time in minutes to accommodate a patient and the number of professionals he/she requires? It is worth remembering that the correlation can vary from -1 to 1.

In the inferential analysis, the association was calculated between interventions at patient admission and characteristics related to sociodemographic and clinical variables. Pearson Correlation was used for quantitative variables. In turn, the Chi-square (X^2) or Fisher Exact Test was calculated for qualitative variables. The Chi-square test was used, which only allows one to say whether there is (or is not) evidence that two qualitative variables are associated. The test hypotheses were:

1) Null hypothesis H0: variable A is not associated with variable B.

2) Alternative hypothesis H1: variable A is associated with variable B.

In all tests, a significance level of 5% was considered.

The work was sent to the Research Ethics Committee of the Federal University of Minas Gerais, in compliance with Resolution 466/2012, having been approved on August 14, 2019, under CAAE number 03518918.8.0000.5149. The participants signed a free and informed consent form, ensuring the confidentiality of their data.

RESULTS

Of the assessed sample, 67% were females and 33% males. Age ranged between 20 and 85 years, with an average of 56 years ± 16. As for the surgical group, Figure 1 illustrates this division.

Among the observed surgeries, 16% of the patients were in the Gynecology group and 16% in the Gastroenterology group. The Urology, Head and Neck Surgery, Orthopedics, Nephrology and Plastic Surgery groups account for between 13 and 7%. There were also 4% of Coloproctology, 4% of Otorhinolaryngology and 3% of Angiology. Surgeries that represented only 1% of each group were considered "other surgeries", totaling 13%.





Source: authors (2023).

Regarding the wings, 69.5% were patients from the Second East and 30.5% were from the Second South. As for the type of anesthesia, 58% underwent general anesthesia and 42% underwent other types of anesthesia (spinal anesthesia, epidural anesthesia or plexus block) with sedation.

Vital signs were classified as follows: heart rate ranged from 50 to 108 beats per minute, with an average of 74.9 \pm 13.64. Systolic pressure ranged from 77 to 198 mmHg, average of 77.78 \pm 24.5. Diastolic pressure ranged from 38 to 140 mmHg, average of 76.78, \pm 16.63. As for axillary temperature, it ranged from 34 to 37.4°C, average of 35.9 \pm 0.61. Respiratory rate ranged between 12 and 24 breaths per minute, average of 17.68 \pm 2.37.

Pulse oximetry ranged from 82 to 100%, with an average of 94.66 ± 3.7 . Of the patients who had hemoglobin saturation below 90%, all required oxygen therapy. On the other hand, 6.59% of the patients with saturation greater than or equal to 90% also required it. It is worth remembering that hemoglobin saturation is one of the parameters that define the need for oxygen therapy, with 15% requiring this intervention.

The SW dressing was dry in 66%, and the rest had blood residues. It is underlined that none of the cases required immediate dressing change.

All patients returned from the surgical center using IV hydration. Nonetheless, 83% had another hydration regimen already prescribed by the physician, requiring its replacement. The remaining 17% continued with the IV hydration scheme started in the surgical center, and the venous access was saline after the scheme was completed.

It is underlined that more than a third of them were using an indwelling urinary catheter (IUC). Only 2% were using a nasoenteric catheter (NEC), both from gastroenterology, 3% of the patients were ostomized, being 2% tracheostomies and 1% ileostomies. Both tracheostomized patients belonged to the Head and Neck Surgery group.

As for the conditions of the venous access, 96% of the patients had a *pervius* access and the rest required a new access. Only 2% were using central venous access (CVA).

The time allocated to the accommodation of patients ranged from 5 to 30 minutes, average of 15.19 minutes \pm 4.7. As for the number of nursing professionals, it ranged from one to four professionals, average of 2.1 \pm 0.52.

Regarding analgesia, proportionally, only the Plastic Surgery and Gynecology surgical groups added more patients who required analgesics than patients who did not; and, in the Plastic Surgery cases,

these proportions do not seem as distant from each other as in the Gynecology cases, where 68.75% of the patients required analgesics.

 Table 1. Surgical groups of patients cared for at a public hospital in Minas Gerais who required

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analgesics. belo horizonte, Minas Gerais, brazil, 2019.			
Frequency of analgesics administered by surgical group			
Surgical group	AF and RF		
Angiology	3 (100.00%)		
Head and Neck	6 (54.55%)		
Plastic Surgery	4 (44.44%)		
Coloproctology	3 (75.00%)		
Gastroenterology	10 (62.5%)		
Gynecology	5 (31.25%)		
Nephrology	5 (62.50%)		
Orthopedics	6 (66.67%)		
Otorhinolaryngology	2 (50.00%)		
Urology	4 (57.14%)		
Others	10 (76.92%)		
Grand total	58 (58.00%)		
Source: authors (2023).			

Among analgesics, dipyrone was the most administered, with its use being greater than or equal to the use of all other analgesics for all surgical groups, with the exception of the Coloproctology group. Its use corresponded to 59.52% of analgesic administrations. Tramadol and ketoprofen reached 16.67% of use.

As for the correlation between the variables "Accommodation time" and "Number of nursing professionals involved", no evidence was found of the existence of a correlation between both, that is, there are no indications that a greater or lesser number of professionals affect the accommodation time. The correlation found was -0.25, indicating a weak negative correlation.

The Angiology, Coloproctology, Otorhinolaryngology and Urology surgical groups required one to two nursing professionals. However, the Head and Neck Surgery, Plastic Surgery, Nephrology and Orthopedics groups required at least two professionals. The Coloproctology group had the highest average time spent for accommodation, reaching 30 minutes in one of the cases. However, only one professional was mobilized in this situation. Six combinations of surgical groups and mobilized professionals were observed, where the average accommodation time was greater than or equal to 20 minutes: Coloproctology, Gynecology, Otorhinolaryngology and others, when one professional was mobilized; Plastic Surgery, when three professionals were mobilized; and Gastroenterology, when four professionals were mobilized.

As for the association between variables, we presented the tests performed and the respective pvalues the following table.

Table 2. Association between variables and surgical groups of patients cared for at a	public hospital in
Minas Gerais. Belo Horizonte, Minas Gerais, Brazil, 2019.	

Hypothesis tests for association			
Variable 1	Variable 2	Test	P-value
Surgical group	Gender	Fisher (simulated p-value)	0.0005
Surgical group	Age group	Fisher (simulated p-value)	0.3263
Surgical group	Analgesic	Fisher (simulated p-value)	0.3638
Surgical group	Analgesic name	Fisher (simulated p-value)	0.7596
Surgical group	PVA	Fisher (simulated p-value)	0.8056
Surgical group	Dressing condition	Fisher (simulated p-value)	0.0946
Surgical group	Hydration change	Fisher (simulated p-value)	0.1014
Saturation	Age group	Fisher	0.1376
Saturation	Oxygen therapy	Fisher	0.0000
Analgesic	Hydration change	Fisher	0.0000
Hydration change	Dressing condition	Fisher	0.0475

Source: authors (2023).

In the previous table, it is observed that the variables "Clinical Group" and "Saturation" had a p-value lower than 0.05, that is, the variables are associated with each other.

The variables "Saturation" and "Oxygen therapy" were also associated with each other, as the test presented a p-value of approximately zero, that is, H0 was rejected. The test between the variables "Need for analgesics" and "Hydration change" also showed an association between the two variables.

The variables "Hydration change" and "Dressing condition" were also associated with each other, as they reject H0. For the other tests in which the p-value is greater than 0.05, H0 was not rejected, that is, the variables had no association with each other for these tests.

DISCUSSION

The South and East admission units are organized as follows: in the first case, it performs gastroenterology services and digestive tract surgeries, in addition to head and neck surgeries. It is a high-complexity sector, and it is not uncommon for many patients to remain in the intensive care unit (ICU) during the first days of the postoperative period. In the second case, the sector performs medium-complexity services. Patients are usually discharged on the first day of the postoperative period. Accordingly, the number of patients cared for was greater in the East sector, since turnover is higher.

In this work, the highest percentage of patients belonged to the Gastroenterology group, almost all with some type of cancer. Colorectal cancer is the most common type of gastrointestinal cancer.⁹ The Gynecology group had the same percentage, and gynecological disorders are responsible for a high number of surgical interventions worldwide.¹⁰ The Head and Neck Surgery group appeared next. Head and neck cancer (HNC) is the generic name for tumors of the oral cavity, pharynx and larynx, and alcoholism and smoking are the main risk factors for these tumors.¹¹

Vital signs were within normal limits. In the immediate postoperative period, nursing care is focused on observing the evolution of the consciousness of the patient, recovery of motility and homeostasis and stability of vital signs.¹² The average axillary temperature was 35.9°C, and some patients were hypothermic. Hypothermia favors the emergence of complications from the moment it takes place in the individual, either during the surgery or in the postoperative period. Thus, actions to prevent and control this state in the perioperative period are necessary, with a view to enabling a better recovery of the patient in the postoperative period.¹³

Average hemoglobin saturation was within normal limits. Hypoxemia is one of the most frequent respiratory complications in the immediate postoperative period. Every patient in this condition needs strict monitoring due to the possibility of developing hypoxemia in its most varied degrees. In order to diagnose hypoxemia, constant monitoring of the breathing pattern of the patient is crucial.¹⁴

The SW dressing showed blood residues in 34% of the patients. The SW dressing change in this hospital is usually performed on the first day of the postoperative period. It is worth remembering that the use of sterile dressings on surgical wounds is an important measure to prevent infection, favoring ideal conditions for the healing process. Nursing is responsible for applying dressings, whose purpose is to ensure and help treat the surgical wound, in such a way as to reduce the risk of infection and promote a favorable environment for the healing process.¹⁵

As for pain, almost half of the sample required analgesia. Postoperative pain, when treated early, is easier to manage than established or intense pain. Pain reassessment is an integrated part of the effective process of pain management, and its frequency will depend on the clinical conditions of the patient, suggesting the need for more or less frequent reassessments.¹⁶ Dipyrone was the most administered analgesic, followed by ketoprofen, tramadol and morphine. Dipyrone is frequently administered, being one of the most used analgesics in countries in Europe, Africa and Latin America.¹⁷ As for non-steroidal anti-inflammatory drugs, these are indicated as single drugs or associated with opioids or regional analgesia for postoperative pain relief. They do not cause respiratory depression, they reduce the necessary opioid dose and, consequently, the incidence of respiratory depression. Opioids are potent analgesics indicated to reduce moderate or severe postoperative pain.¹⁸

Most patients returned from the PACU with a new prescribed intravenous hydration scheme, requiring new infusion manipulation. In order to discuss intravenous hydration in the postoperative period, it is necessary to mention the multimodal protocol ACERTO (*Aceleração da Recuperação Total no Pós-Operatório* [Acceleration of Full Postoperative Recovery]), originally implemented in Brazil in 2005, at the University Hospital of Cuiabá, MT.¹⁹ The ACERTO protocol consists of a care group that aims to reduce surgical stress, maintain physiological function in the postoperative period with lower morbidity rates,

accelerated recovery and shorter hospital stay. In addition to the positive results achieved with the application of all components of the protocol together, three approaches stand out: perioperative intravenous hydration, reduction of preoperative fasting time and early postoperative refeeding. The implementation of the ACERTO protocol is safe, feasible and associated with better results. However, there is still some resistance in terms of changing the paradigms present throughout the surgical process.²⁰

It is underlined that more than a third of the patients were using IUC. It is essential to avoid or, at least, reduce the duration of use of IUC, as it is associated with complications. In the postoperative period, it is recommended not to exceed 48 hours, except in specific cases.²¹

In turn, the CNE was used by only two patients, both undergoing surgery of the gastrointestinal tract. Although the use of CNE seems frequent in admitted patients, there are few studies on the number of users of this medical device.²²

In the South sector, the presence of colostomized or ileostomized patients is common. Although only 1% had an ileostomy, it is known that this number may be underestimated, since many patients remain in the ICU during the immediate postoperative period.²³ A study on nursing diagnoses in patients with intestinal stomata emphasizes that the ostomized person has modified basic human needs, such as physical and psychological changes. Accordingly, nursing must act in the immediate postoperative period, facilitating the adaptation of the person with a stoma to this new condition.

As for tracheostomies (TQT), the two tracheostomized patients belonged to the Head and Neck surgery group. The most common early complication of TQT is bleeding, followed by subcutaneous emphysema and airway obstruction.²⁴ Thus, its presence requires greater attention on the part of the nursing team.

Few patients required a new venous access when they were admitted to the surgical center. In this hospital, the length of stay of a peripheral venous device is up to 96 hours. It was sought to preserve it, thus avoiding multiple punctures. Peripheral venous access (PVA) constitutes a risk of complications, impacting on patient safety and well-being, which are so widespread in hospital routines. Phlebitis is one of the most common complications.²⁵

The average time for patients to be completely accommodated in bed was 15.19 minutes. Total patient safety may be related to the time devoted to provide care. It is worth remembering that patient safety is on the rise in Brazil.²⁶

It was observed that there are no indications that a greater or lesser number of professionals affect the accommodation time. Nonetheless, in this sample, the average number of professionals per patient was 2.1. The adequate number of professionals is essential for safe care.²⁷

As for other care actions, few patients required oxygen therapy, as the average saturation was 94.66%. It is worth remembering that, in addition to hemoglobin saturation, other factors define the need for oxygen therapy. We highlight the Aldrete and Kroulik Index (IAK), widely used in post-anesthetic recovery, whose assessed parameters are: muscle activity, breathing, circulation, consciousness and peripheral oxygen saturation.²⁸ This index is used in hospitals, the type of place that consisted of the setting of this research.

With respect to pain and analgesia, the Gynecology and Plastic Surgery surgical groups added more patients who required analgesics. Studying pain in the postoperative period of gynecological surgery, the authors highlight the importance of a good conversation in the preoperative period with the patient and his/her family, and this issue is also reflected in the approach to the intensity of postoperative pain and in the indication of analgesics.²⁹

The Coloproctology group had the highest average accommodation time, with only one employee being mobilized, but requiring the longest time: 30 minutes. It is underlined that anorectal surgeries correspond to most surgeries in the area of coloproctology.³⁰ The postoperative period deserves special attention, since surgical complications occur with some frequency.

Gastroenterology was the group that mobilized four professionals. Punctuating this case, specifically, it was a complex patient, submitted to ileostomy, using catheters and drains and more than one source of IV hydration. Accordingly, health care was naturally more complex.

Regarding the statistical association between variables, we highlight the variables "Saturation" and "Oxygen Therapy", which were associated with each other. Oxygen should be administered when the partial pressure of oxygen (PaO_2) in arterial blood is less than 60 mmHg or when hemoglobin saturation in peripheral blood is less than 93%-95%.³¹

The fact that most of the patients who underwent surgery in the clinical and surgical unit in the South Wing were transferred from the surgical center to the ICU was the limiting factor of this study. These patients could not be included in the survey. As contributions, we believe that this study will favor the assessment of the degree of dependence of the patient going through the IPO in relation to the nursing team, when admitting this patient to the clinical and surgical unit, and the preparation of protocols targeted at this profile of patients.

CONCLUSION

In this study, the demands of patients in the immediate postoperative period were observed, when they were accommodated in their beds, as well as when they returned from the surgical center. The time allocated to accommodation in bed ranged from 5 to 30 minutes, with an average of 15.19. It was found that there are no indications that a greater or lesser number of nursing professionals working together affect the accommodation time of the patient in bed. Nonetheless, the average number of professionals per patient was 2.1.

CONTRIBUITIONS

Contributed to the conception or design of the study/research: Donoso MTV, Aguiar FHS, Calhau GS. Contributed to data collection: Donoso MTV, Aguiar FHS, Calhau GS, Souza DPB, Silva RRSS, Padovani FF. Contributed to the analysis and/or interpretation of data: Donoso MTV, Aguiar FHS, Calhau GS. Contributed to article writing or critical review: Donoso MTV. Final approval of the version to be published: Donoso MTV, Aguiar FHS, Calhau GS, Souza DPB, Silva RRSS, Padovani FF.

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