CLINICAL CHARACTERIZATION AND CROSS-MAPPING OF THE NURSING INTERVENTIONS FOR HYPOTHERMIA IN THE INTRAOPERATIVE PERIOD

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ABSTRACT

Objectives: to map the Nursing prescriptions for patients with diagnoses related to hypothermia in the intraoperative period with the activities proposed by the Nursing Interventions Classification, and to characterize the sample based on the risk factors for the development of this discomfort.

Method: a descriptive, documentary and retrospective study, with a quantitative approach that followed three stages: cataloging of the interventions, documentary analysis, and cross-mapping. The following variables were analyzed: patient's age and gender; surgery duration; minimum, mean and maximum temperatures, and variation of the surgery room and patient temperatures; and whether or not the type of surgery involved opening a body cavity, in a sample of 138 medical charts evaluated from August to September 2019 by using a checklist composed of identification data and diagnosis components from the *NANDA-International* diagnoses: risk of perioperative hypothermia and hypothermia. Absolute and percentage frequency analyses, mean, standard deviation, and the R software were employed.

Results: 419 activities incorporated in 12 interventions were verified that were related to hypothermia in the corresponding taxonomy; as well as 13 Nursing care measures prescribed and five interventions mapped. The variables which reached significance were surgery duration and cavity opening.

Conclusion: by means of cross-mapping, it can be asserted that the care measures prescribed are based on the standardized language, thus contributing to unification of the Nursing practice.

DESCRIPTORS: Standardized Nursing terminology. Hypothermia. Intraoperative period. Perioperative Nursing. Nursing records, Nursing care.

CARACTERIZAÇÃO CLÍNICA E MAPEAMENTO CRUZADO DAS INTERVENÇÕES DE ENFERMAGEM PARA HIPOTERMIA NO PERÍODO INTRAOPERATÓRIO

RESUMO

Objetivos: mapear as prescrições de enfermagem para pacientes com diagnósticos relacionados à hipotermia no período intraoperatório com as atividades propostas pela Classificação das Intervenções de Enfermagem e caracterizar a amostra a partir dos fatores de risco para o desenvolvimento desse desconforto.
Método: estudo descritivo, do tipo documental, retrospectivo, com abordagem quantitativa, que seguiu três etapas: catalogação das intervenções, análise documental e mapeamento cruzado. Foram avaliadas as variáveis: idade e sexo do paciente; tempo de cirurgia; temperaturas mínima, média, máxima e variação da temperatura da sala de operação e do paciente; e tipo de cirurgia envolvendo abertura de cavidade corporal ou não, em uma amostra de 138 prontuários avaliados de agosto a setembro de 2019 através da utilização de um *checklist* composto por dados de identificação e componentes dos diagnósticos *NANDA-International*: risco de hipotermia perioperatória e hipotermia. Empregou-se análises de frequências absoluta e percentual, média, desvio padrão e *software* R.
Resultados: verificou-se 419 atividades inseridas em 12 intervenções relacionadas à hipotermia na taxonomia correspondente; 13 cuidados de enfermagem prescritos e cinco intervenções mapeadas. Das variáveis, obtiveram significância o tempo da cirurgia e abertura da cavidade.
Conclusão*:* por meio do mapeamento cruzado, pode se afirmar que os cuidados prescritos são embasados na linguagem padronizada contribuindo para a unificação da prática da enfermagem.

DESCRITORES: Terminologia Padronizada de enfermagem. Hipotermia. Período intraoperatório. Enfermagem perioperatória. Registros de enfermagem. Cuidados de enfermagem.

CARACTERIZACIÓN CLÍNICA Y MAPEO CRUZADO DE LAS INTERVENCIONES DE ENFERMERÍA PARA HIPOTERMIA EN EL PERÍODO INTRAOPERATÓRIO

RESUMEN

Objetivos: mapear las prescripciones de enfermería para pacientes con diagnósticos relacionados con hipotermia en el período intraoperatorio con las actividades propuestas por la Clasificación de Intervenciones de Enfermería y caracterizar la muestra sobre la base de los factores de riesgo para el desarrollo de este malestar.
Método: estudio descriptivo, documental, retrospectivo con enfoque cuantitativo, realizado en tres etapas: catálogo de intervenciones, análisis documental y mapeo cruzado. Se evaluaron las siguientes variables: edad y sexo del paciente; tiempo de cirugía; temperatura mínima, media y máxima; variación de temperatura del quirófano y del paciente; tipo de cirugía que implique o no apertura de la cavidad corporal, en una muestra de 138 historias clínicas evaluadas de agosto a septiembre de 2019 por intermedio de un *checklist* compuesto por datos de identificación y componentes de los diagnósticos *NANDA-International*: riesgo de hipotermia e hipotermia perioperatoria. Se utilizaron análisis de frecuencias absolutas y porcentuales, media, desviación estándar y *software* R.
Resultados: se incluyeron 419 actividades en 12 intervenciones relacionadas con la hipotermia en la taxonomía correspondiente; 13 cuidados de enfermería prescritos y cinco intervenciones mapeadas. Entre las variables, el tiempo de cirugía y la apertura de la cavidad fueron significativos.
Conclusión: a través del mapeo cruzado, se puede afirmar que la atención prescrita se basa en un lenguaje estandarizado, que contribuye a la unificación de la práctica de enfermería.

DESCRIPTORES: Terminología de enfermería estandarizada. Hipotermia. Período intraoperatorio. Enfermería perioperatoria. Registros de enfermería. Cuidados de enfermería.

INTRODUCTION

Throughout the years, the science of caring seeks autonomy and professional recognition. *Nursing Now*[1] presents itself as a means to empower the profession to the extent that it awakens in the class the relentless pursuit for the unification of its practice. To this end, the campaign expresses the indispensability of systematized Nursing in all scopes of the professional practice.

In this sense, Standardized Language Systems (SLS) are instruments that make it possible to analyze such need. In the international scene, there are nearly 12 Standardized Language Systems acknowledged by the American Nursing Association (ANA)[2]. Of those, the most frequently used are: *NANDA-International* for the Diagnoses*;* the Nursing Outcomes Classification (NOC); the Nursing Interventions Classification (NIC); and the International Classification for Nursing Practice (ICNP)[3].

For the implementation of the Nursing actions, the nurse can make use of the 554 Nursing interventions (NIs), and of the respective activities contemplated in the NIC, distributed into seven domains and 30 classes[2]. That range of courses of action allows the professional to list priority interventions, from the relationship with the Nursing Diagnoses (NDs) raised by means of clinical reasoning, to accomplish the expected result. However, despite the relevance of the SLSs' applicability, and the constant impetus of facilitating its implementation[4–5], their use is still very limited[6].

In the hospital-surgical scene, especially in perioperative Nursing, the use of a standardized language becomes indispensable since the surgical center is a uniquely complex place, which lacks safe and targeted care[7]. In this scope, one of the most common discomforts is hypothermia. The literature classifies this discomfort as mean central body temperature $< 36^\circ C$[8–10]. In turn, it is known that hypothermia affects a mean of 70% of the patients subjected to the anesthetic-surgical act[11–12].

In this sense, many times the nurse performs prevention actions, but not always based on a taxonomy, such as the NIC. Consequently, to evaluate the importance of using an SLS, it is necessary to evaluate the care provided. To do so, a resource that allows for the comparison between the records made by the professionals with their respective classification system is cross-mapping[13–14].

Given the above, the following question arose: which Nursing interventions documented in medical charts of patients with diagnoses related to hypothermia in the intraoperative period are in line with the Nursing Interventions Classification, and what risk factors are the most frequent for the development of this discomfort?

In view of that, this study had as its main objective to map the Nursing prescriptions for patients with diagnoses related to hypothermia in the intraoperative period, with activities proposed by the Standardized Language System: the Nursing Interventions Classification (NIC). There was also a secondary objective: to characterize the sample based on the risk factors for the development of this discomfort.

METHOD

This is a descriptive, documentary and retrospective study, with a quantitative approach, in which by means of cross-mapping, the Nursing prescriptions documented in the medical charts of surgical patients were compared to the activities proposed by the NIC.

The research followed three stages, namely: cataloging the NIC interventions and activities suggested for diagnoses related to hypothermia (risk of hypothermia, hypothermia, and risk of perioperative hypothermia); categorization of the sample and analysis of the Nursing prescriptions in medical charts of surgical patients with diagnoses related to that discomfort in the intraoperative period; and mapping the actions prescribed based on the NIC interventions and activities.

During August and September 2019, medical charts from two surgical centers at the University Hospital of *Universidade Federal de Sergipe* (HU/UFS) were analyzed, in which, the Statistical and Medical Filing Service (*Serviço de Arquivo Médico e Estatístico*, SAME), responsible for record archiving, constituted the study locus.

The following inclusion criteria were considered: patients admitted to the surgical centers from April 2018 to April 2019, regardless of their age group; and with Nursing diagnoses related to hypothermia documented in their medical charts. Charts lacking body temperature records, or with prescriptions introduced by Nursing students were excluded, as well as illegible Nursing prescriptions.

From a monthly rate of 115 surgeries in 2018, hypothermia represented a mean of 88.7% of the incidence of this discomfort in the aforementioned hospital. Based on this information, an estimate of 612 hypothermia cases was made for the months of November 2018 and April 2019, corresponding to the implementation period of the Systematization of Perioperative Nursing Care (*Sistematização da Assistência de Enfermagem Perioperatória*, SAEP) at HU/UFS. Of those, a random sample of 138 medical charts was obtained and distributed for a monthly analysis of 23 documents.

The data were collected by two researchers by means of consultation and analysis of the records of patients that met the inclusion criteria, followed by the filling-in of a checklist composed by identification data (name and chart number) and components of the NANDA-I diagnoses evaluated[15], of which the following were considered as study variables: age, comorbidities, weight, medications in use, type of surgery; surgery duration, type of anesthesia; temperature in the operative room; and patient's temperature. In addition to those data, the collection instrument also offered a space to record Nursing diagnoses and interventions.

The data collected were organized in the *Microsoft Office Excel* program. This organization occurred after reclassifying the hypothermia, risk of hypothermia, and risk of perioperative hypothermia diagnosis (performed by the authors), based on the temperatures and Nursing diagnoses recorded in the charts and according to NANDA-I definitions, with all cases susceptible to a significant reduction in body temperature being considered as risk of hypothermia and risk of perioperative hypothermia. As for hypothermia, body temperature ≤ 36°C was considered[8–9]. All the charts without a temperature record were excluded from the analysis.

In this study, cross-mapping was used as methodological framework, and the following rules were defined: mapping the context of the Nursing interventions; mapping the meaning of the words and not only the words; using the verbs as keywords in the intervention; mapping the intervention starting from the NIC intervention label for the activity; mapping the interventions that have two or more verbs for two or more corresponding NIC interventions[16].

Descriptive statistics, expressed in absolute (n) and percentage (%) frequencies, mean, and standard deviation, was used for the analysis of the Nursing prescriptions. The study variables were analyzed by means of the R software using Generalized Linear Models (GLMs) followed by residues analysis to verify the adequacy of the distribution of errors and the models used. To analyze the errors and success proportion in relation to the risk of perioperative hypothermia and hypothermia diagnoses recorded in relation to the standard classification, the χ^2 test was performed.

The probabilities of risk of perioperative hypothermia or hypothermia (*y* variables) were analyzed by using Binomial distribution of errors. Independent models were analyzed considering the following as explanatory variables (*x*): patient's age and gender; surgery duration; minimum, mean and maximum temperature, and variation of the operating rooms and the patient's temperatures; and whether the type of surgery involved opening a body cavity or not.

To evaluate if there was any influence of the number of interventions (*y* variable) by the patient's age and gender, risk classification and hypothermia diagnosis, surgery duration, and opening of a body cavity (*x* variables), independent models were made, with Poisson error distribution, corrected for over dispersion.

This is an indirect study with human beings, conducting analysis of medical charts, in accordance with Resolution 466/2012 of the National Health Council.

RESULTS

At a first moment, by means of the cataloging stage and based on the definitions of the interventions (NIC), the suggested interventions were collected, as well as additional elective ones available in the NIC for the Nursing diagnoses of risk of hypothermia, hypothermia, and risk of perioperative hypothermia[2].

Of the 554 NIC interventions, 16 were associated with hypothermia. After analyzing the relationship of the titles with the diagnoses under study, two of those interventions were excluded for not responding to the research object: one addressed hypothermia induction (3790), and the other dealt with infant care (6820). The indication confirmation of the other 14 NIC interventions in the cataloging stage was based on the Guidelines for Nursing Practices[17], so that another two interventions were excluded: Fluid/Electrolyte Management (2080) and Electrolyte Management (2000), both belonging to the Electrolyte and Acid-base Control class of the Physiological: Complex domain.

Thus,12 NIC interventions were cataloged, 10 belonging to the Physiological: Complex domain, namely: five from the "Control of tissue perfusion" class ("Shock Management - 4250", "Hemodynamic Regulation - 4150", "Shock Prevention - 4260", "Fluid Monitoring - 4130", and "Fluid Management - 4120"); three from the "Thermoregulation" class ("Temperature Regulation – 3900", "Temperature Regulation: Perioperative - 3902", and "Hypothermia Treatment - 3800"); and two of the "Respiratory Control" class ("Oxygen Therapy – 3320", and "Respiratory Monitoring - 3350"). The other two interventions, "Environmental Management (6480)" and "Vital Signs Monitoring (6680)", belong to the "Risk Management" class of the "Safety" domain.

With regard to the activities proposed by the NIC, of the 13,000 listed, 419 were contained in the 12 interventions cataloged; however, 74 comprised the list to be mapped for having hypothermia prevention and control as care focus.

The second stage of the research was the documentary analysis, by means of which the Nursing prescriptions recorded in the medical records were searched for and selected, in addition to surveying the study variables, described below.

The sample was characterized by female (60%) and male (40%) patients, aged ≤ 85 years old, with greater prevalence (60.9%) of young adults (±12.7).

As for the body temperature variables, 14% were norm thermic (less than or equal to 36°C), 62% had slight hypothermia (between 34ºC and 36ºC), and 13% presented moderate hypothermia (between 30ºC and 34ºC). There were no cases of severe (below 30ºC) or deep (below 20ºC) hypothermia. In 11% of the medical charts analyzed, no records of the patient's temperature were identified and, therefore, they were excluded from the sample. Other three records were excluded: two for having prescriptions written by Nursing students and one due to illegible prescriptions.

Regarding the anesthetic-surgical time, 4% procedures lasted less than 30 minutes; 17% lasted between 30 minutes and an hour; 27% between one and two hours; 28% of the individuals had surgeries lasting between two and three hours; 14% between three and four hours; 9% for more than four hours; and in 1% there was no record of this variable.

Another researched variable was type of anesthesia. The general anesthesia modality (inhalation, intravenous, balanced) presented greater incidence, with 55% of the records, followed by regional/ local with 33%, and by the combined modality with 12%.

In relation to the involvement of body cavity opening during the surgical procedure, 26% had a cavity opened, in contrast to 73% in which no cavity was opened. This information was not recorded in 1% of the medical charts.

As for the operating room's temperature, in 8% of the cases it was below 18ºC, in 75% it was between 18°C and 22°C, and in 17% it was above 22°C.

Of the 243 Nursing diagnoses analyzed, those related to hypothermia ranked as first choice in 66% of the cases; in 33% they were listed second, and only in 1% of the times they were chosen in third and fourth position. The risk of hypothermia diagnosis was present in 39% of the cases, risk of perioperative hypothermia in 50%, hypothermia in 10%, and risk of inefficient thermoregulation in 1%. However, 72.66% of these presented inconsistencies in the writing of the diagnosis at some moment: some wrote only the diagnosis title, while others presented inconsistencies in the standard language.

When analyzing the relationship between the body temperature values recorded in the medical charts and the hypothermia, risk of perioperative hypothermia, and risk of hypothermia diagnosis, it was possible to observe that their classification differed significantly from the hypothermia parameters and definitions of the diagnoses recommended by the literature[8,15]. For this reason, it became necessary to reclassify the diagnoses so that the incidence of the risk of hypothermia diagnosis was grouped into the risk of perioperative hypothermia diagnosis: $\chi^2=61.54$, d.f. =1, $P<0.001$; hypothermia: $\chi^2=58.74$, d.f. =1, $P<0.001$). The error proportions of the risk of perioperative hypothermia and risk of hypothermia classifications were 85% and 83%, respectively (Figure 1).
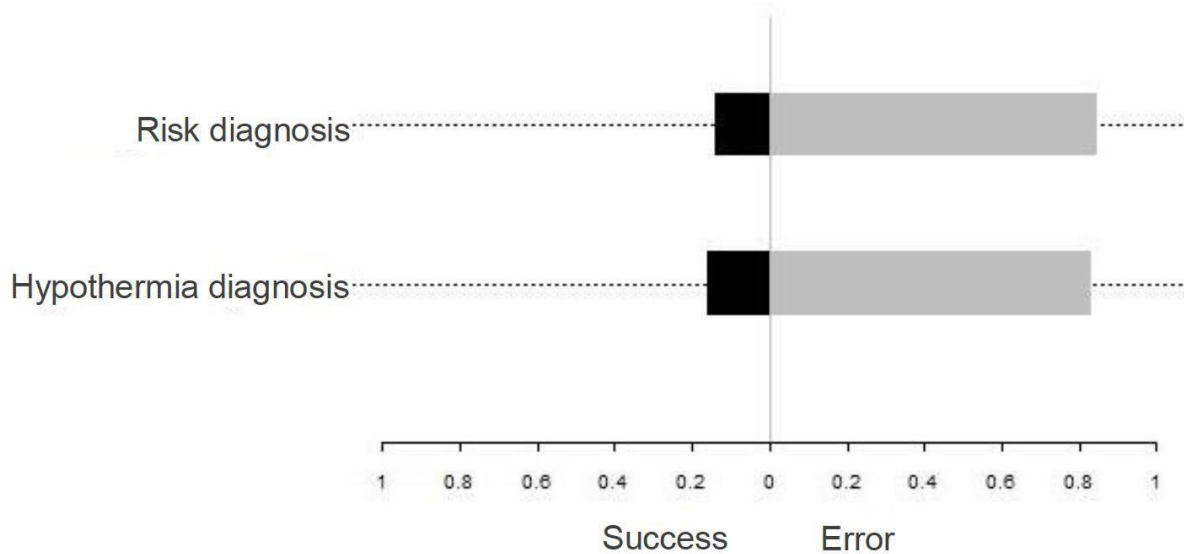

Figure 1 – Success/Error proportions identified in the records of risk of perioperative hypothermia and hypothermia diagnoses, HU/UFS. Aracaju, Sergipe, Brazil, 2019.

As for the related factors, risk factors and associated conditions, Table 1 allows noticing that the chances of the hypothermia and risk of perioperative hypothermia diagnoses did not vary with patients' age and gender, or with the operating room temperature. On the other hand, there was a greater chance for both to occur upon increase in surgery duration and in patients that underwent surgeries with body cavity opening.

Table 1 – Variation in the proportion of the risk of perioperative hypothermia and hypothermia diagnoses according to age, gender, surgery duration, operating room (OR) temperature, and performance of the surgery with or without body cavity opening. Aracaju, SE, Brazil, 2019. (n=138)

Variable	d.f.*	Deviance	p	
Risk of perioperative hypothermia				
Age	121	0.10	0.74	*n.s.*†
Gender	120	0.18	0.66	*n.s.*
Age:gender	119	1.53	0.21	*n.s.*
Surgery duration	120	5.09	0.02	* ‡
OR minimum temperature	121	0.005	0.98	*n.s.*
OR mean temperature	121	0.17	0.67	*n.s.*
OR maximum temperature	121	0.18	0.66	*n.s.*
Cavity opening	120	6.18	0.01	*
Hypothermia diagnosis				
Age	121	0.12	0.72	*n.s.*
Gender	120	0.19	0.65	*n.s.*
Age:gender	119	0.97	0.32	*n.s.*
Surgery duration	120	6.12	0.01	*
OR minimum temperature	121	0.12	0.72	*n.s.*
OR mean temperature	121	0009	0.95	*n.s.*
OR maximum temperature	121	0.02	0.87	*n.s.*
Cavity opening	120	7.37	0.001	*

It indicates degrees of freedom. † It indicates non-significant effect. ‡ It indicates significant effect.

Also in the second stage of the research and by means of documentary analysis, 400 actions prescribed were retrieved that were grouped according to equivalent care measures, totaling 13 Nursing prescriptions described in Table 2, whose care related to temperature monitoring were scheduled in almost all cases (0.99±0.008), as well as their verification (0.90±0.02).

Table 2 – Nursing prescriptions documented in the medical charts of clients assisted in the surgical centers. Aracaju, SE, Brazil, 2019. (n=138)

Nursing prescriptions	∫* (%)	Monthly mean	SD(±)
Monitor vital signs	90 (22.5)	15.0	3.3
Control OR temperature	88 (22.0)	14.7	2.8
Cover the patient	47 (11.7)	7.8	1.1
Install the thermal blanket	108 (27.0)	18.0	1.5
Minimize patient's exposure	30 (7.5)	5.0	3.2
Infuse heated solutions	17 (4.2)	2.8	0.9
Promote extra warming measures	5 (1.2)	0.8	0.4
Assess peripheral perfusion	4 (1.0)	0.7	0.7
Monitor skin color, temperature, and moisture	4 (1.0)	0.7	0.5
Monitor oximetry	4 (1.0)	0.7	0.7
Monitor signs of hypothermia	3 (0.7)	0.5	0.6

* It indicates absolute frequency.

According to Table 3, the number of interventions did not vary with the risk of perioperative hypothermia and hypothermia diagnosis, or with the duration of the surgery underwent by the patients. A mean of 2.9 (±0.17) Nursing prescriptions was calculated for each medical chart. Similarly, there was also no variation in the number of interventions performed according to the patient's age. On the other hand, there were fewer interventions in patients subjected to surgeries with body cavity opening.

Table 3 – Variation in the number of interventions according to patient's age, risk of perioperative hypothermia and hypothermia, and surgery duration and type. Aracaju, SE, Brazil, 2019. (n=138)

Variable	d.f.*	Deviance	p	
Number of interventions				
Age	121	0.05	0.98	*n.s.*[†]
Gender	120	0.12	0.72	*n.s.*
Age:gender	119	1.31	0.57	*n.s.*
Risk of perioperative hypothermia	121	1.65	0.20	*n.s.*
Hypothermia diagnosis	121	2.22	0.13	*n.s.*
Surgery duration	120	1.29	0.25	*n.s.*
Cavity opening	120	6.18	0.01	*[‡]

It indicates degrees of freedom. † It indicates non-significant effect. ‡ It indicates significant effect.

In the third research stage (cross-mapping), the thirteen care focuses prescribed were mapped with the activities in the Nursing Interventions Classification (NIC) System, according to Chart 1.

Nearly 77% of the prescriptions were mapped in more than one NIC intervention, as the same activity can be present in more than one intervention. Therefore, the most similar ones were chosen to compose the mapping. Thus, the totality of the 12 cataloged interventions were mapped.

Among the five interventions mapped, "Temperature Regulation", "Temperature Regulation: Perioperative" and "Hypothermia Treatment" belong to the "Thermoregulation" class of the "Physiological: Complex" domain. The "Hemodynamic Regulation" intervention from this domain was also mapped, belonging to the "Control of tissue perfusion" class. As for the "Vital Signs Monitoring" intervention, it was mapped in the "Risk Management" class, belonging to the "Safety" domain.

Chart 1 – Mapping of the Nursing prescriptions documented in the medical charts evaluated with the activities proposed by the NIC. Aracaju, Sergipe, Brazil, 2019

Interventions	Activities	Prescriptions
Temperature Regulation: Perioperative	Install and regulate the active heating device	Install the thermal blanket
	Adjust room temperature to minimize risk of hypothermia	Control room temperature
	Minimize patient's exposure during surgical preparation and procedure	Minimize patient's exposure
	Provide hot or cold irrigating solutions	Infuse heated venous solutions
Temperature Regulation	Use a heating mattress, warm blankets, and a warm environment to increase body temperature	Promote extra warming measures

Chart 1 – Cont.

Interventions	Activities	Prescriptions
Hypothermia Treatment	Remove cold and wet clothes from the patient	Replace wet clothes for dry ones
	Apply active external reheating	Cover the patient
	Identify medical, environmental and other factors that might favor hypothermia	Control air drafts in the operating room
Hemodynamic Regulation	Monitor peripheral pulses, capillary refill, and limbs' temperature and colors	Assess peripheral perfusion
	Monitor and report signs and symptoms of hypothermia and hyperthermia	Monitor signs of hypothermia
Vital Signs Monitoring	Monitor skin color and temperature	Monitor skin color, temperature, and moisture
	Monitor pulse oximetry	Monitor oximetry
	Monitor blood pressure, pulse, temperature and respiratory status, as appropriate	Monitor vital signs

The incidence of the mapped interventions indicates that nurses are focusing their clinical actions on preventive measures, problem-reducing factors, and potential factors for the development of the risk of perioperative hypothermia and hypothermia.

DISCUSSION

In the sample categorization, although the female gender has shown greater prevalence, no scientific evidence was found on this variable as a predisposing factor for hypothermia, corroborating with the statistical tests in which there was no significant variation for the hypothermia and risk of perioperative hypothermia diagnoses regarding the patient's gender. In relation to age, the literature addresses age extremes as a risk variable for the development of these diagnoses; however, as the greatest number of surgical cases has concentrated in the adult age group, the results presented diverge from the literature[15,17].

The anesthetic-surgical act influences homeostasis through several factors[18–19]. Thus, when analyzing the patient's temperature in the operating room, it is necessary to take into account the factors related to the conditions associated with that imbalance in thermoregulation[15,20]. In this sense, the Nursing team must be attentive for a correct preoperative evaluation, capable of early identifying the individual's predisposition to such discomfort.[22]

Another factor that predisposes the onset of hypothermia is the anesthetic-surgical time. A number of international studies show that the longer it is, the greater is the exposure to agents that induce the development of this discomfort[9,21]. In the results of this research, most of the surgeries lasted from one to three hours and, when correlating with the type of hypothermia most frequently presented - slight hypothermia - they converge with what is addressed by the Guidelines for Surgical Nursing Practices and Processing of Health Products[17].

As for type of anesthesia, the greatest incidence was in the cases of general, balanced, and local anesthesia, respectively. Diverse evidence proves that hypothermia is more associated with the cases in which the anesthesia modality reaches deep vasodilatation levels, resulting in an imbalance which is proportional to the thermoregulation physiology[22–23]. However, no association of this variable with hypothermia was performed, since in most records there was more than one anesthesia modality for the patient and, when analyzing them, *n* did not show representativeness.

Similarly, the more the individuals were exposed during the anesthetic-surgical act, the greater the chance for them to have this discomfort[8]. In this study, the opening of the abdominal cavity was an important analysis variable, since it meets such data and evidences the need for greater attention to the care directed to prevent this problem.

When correlating the anesthetic-surgical time and prevalence of cavity opening variables, it was noticed that, in line with other studies about hypothermia prevention[8,22], the patient has greater predisposition to the hypothermia diagnosis, with monitoring of the patient's temperature in the operating room being necessary.

Regarding this monitoring, two variables are relevant: scheduling and verification. Both support the evaluation by the Nursing team in relation to fulfilling the implementation stage of the prescribed care measures[24].

As for the operating room temperature, the records on room temperature remained according to the recommended parameters, which highlight the relationship of this variable with greater susceptibility to the manifestation of hypothermia[25], which indicates the need of the surgery teams to pay attention to such recommendations.

When it comes to the Nursing diagnoses recorded, it was noticed that, when evaluating the patients, the nurses prioritized hypothermia or its susceptibility to the detriment of other diagnoses suggested by *NANDA-I*, confirming the high prevalence cited in a number of studies[9,11].

The interventions contemplated in the "Physiological: Complex" and "Safety" domains, mapped in the third research stage, meet the needs incorporated in the three basic laws - individual's homeostasis, adaptation of the being and body holism – of the theory of basic human needs proposed by Wanda Horta[26]. Thus, the interventions in the surgical environment must prioritize care for the prevention of hypothermia or its worsening by means of clinical reasoning, in order to ensure that the expected results for the diagnoses surveyed are attained[27].

Regarding the prescriptions that focus on prevention (install thermal blanket; promote extra warming measures; and cover the patient), they are in accordance with the literature that addresses the types of heating, whether active (thermal blanket) or passive (simple blankets) as strategic care to maintain temperature above 36°C, to the extent that they reduce the possibility of the patient exchanging heat through radiation[23,25]. Another essential care measure for preventing or reverting hypothermia is the infusion of heated venous solution. It presents itself as a relevant coadjuvant to attain the proposed objective[19].

Regarding the problem-reducing factors, it was also observed that, to minimize the complications of the temperature drop in the individuals, nurses work according to the signs manifested by the patients, as for example, through the following prescriptions: monitor vital signs; monitor hypothermia signs, monitor skin color, temperature and moisture; monitor oximetry; evaluate peripheral perfusion. Converging with scientific findings, monitoring actions like these are the main interventions to reduce complication risks[8,22].

When it comes to the potential factors, prescriptions that were related to the environment were obtained, namely: control room temperature; control air drafts in the room; replace wet clothes for dry ones; and minimize patient exposure. In a particular way, they reveal attention turned to ensure that heat exchange through radiation will be minimal, as recommended by the literature[25]. In this context, the Nursing team's actions must be directed to the immediate prevention or rehabilitation of this problem, since the surgical environment imposes countless conditions that favor the onset of these diagnoses[16]. Therefore, it is crucial to trace them based on monitoring and frequent care for the individual.

Although all the prescriptions pointed to meeting the physiological and environmental needs present in the anesthetic-surgical context, no records were identified in which the Nursing team showed understanding how those factors alter the individual's thermoregulation, or that warn the patients immediately after entering the operating room, protecting them from hypothermia before anesthetic induction, as recommended[17].

Regarding the study limitations, it was not possible to analyze the effectiveness of the actions prescribed due to the absence of records on this information. Thus, further studies focusing on the outcome and evaluation of the Nursing Process are suggested.

As for the advances in scientific knowledge, the analysis based on risk factors, related factors, and associated conditions proposed by NANDA-I highlights the importance of the interrelation between the Nursing Process stages, essential in systematized care, and necessary for the professional acknowledgment of Nursing.

CONCLUSION

Cross-mapping evidenced the trend in the nurses' practice regarding the use of a standardized language when supporting their practice. The incidence of the mapped interventions indicates that nurses base their clinical practice on preventive measures, problem-reducing factors, and potential factors for the development of the risk of perioperative hypothermia and hypothermia.

However, it was verified that care is not always being prescribed in an individualized manner since, regardless of the significant variables, the interventions remained constant.

Finally, the use of universal language to systematize Nursing care in the anesthetic-surgical scope is noted, highlighting qualified care by the Nursing team, foundation of the empowerment of this profession.

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NOTES

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APPROVAL OF ETHICS COMMITTEE IN RESEARCH

Approved in the Research Ethics Committee of the *Universidade Federal de Sergipe*, under opinion No.3,561,743/2019, and Certificate of Presentation for Ethical Appreciation No. 15583119.8.0000.5546.

CONFLICT OF INTEREST

There is no conflict of interest.

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