

KNOWLEDGE OF THE NURSING STAFF IN A SURGICAL CENTER ABOUT HYPOTHERMIA IN CANCER SURGICAL PATIENTS

Conhecimento dos profissionais de enfermagem de centro cirúrgico sobre hipotermia em pacientes cirúrgicos oncológicos

Conocimiento de los profesionales de enfermería de centro quirúrgico sobre hipotermia en pacientes quirúrgicos oncológicos

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ABSTRACT: **Objective:** This study aimed to analyze the knowledge of the surgical center nursing staff about hypothermia in oncological surgical patients, before and after educational intervention. **Method:** This is a descriptive exploratory, cross-sectional, field study with a quantitative approach. Twenty-one nursing professionals were interviewed, and data were collected before and after the educational intervention. **Results:** The result after application of the test showed greater approval, and the educational intervention evidenced better use in comparison with the prior test to assess the knowledge of the nursing professionals. **Conclusion:** Faced with this fact, it is up to the nurse to plan for interventions and to establish priorities for achieving goals, in order to reduce complications related to hypothermia. Therefore, it is critical that the surgical center nurse guide the team and be the link between technical and scientific knowledge in order to improve the quality of the surgical patient care.

Keywords: Perioperative nursing. Hypothermia. Post-anesthesia nursing.

RESUMO: **Objetivo:** Este estudo teve como objetivo analisar o conhecimento dos profissionais de enfermagem de centro cirúrgico sobre hipotermia em pacientes cirúrgicos oncológicos, antes e após intervenção educativa. **Método:** Trata-se de um estudo descritivo de caráter exploratório, transversal, de campo e com abordagem quantitativa. Foram entrevistados 21 profissionais de enfermagem, e os dados foram coletados antes e após a intervenção educativa. **Resultados:** O resultado após a aplicação do teste mostrou maior aprovação, e a intervenção educativa evidenciou melhor aproveitamento em comparação ao teste de conhecimento prévio dos profissionais de enfermagem. **Conclusão:** Diante desse fato, compete ao enfermeiro o planejamento de intervenções e o estabelecimento de prioridades para que metas sejam alcançadas, diminuindo complicações relacionadas à hipotermia. Por fim, é fundamental que o enfermeiro de centro cirúrgico norteie sua equipe e seja o elo do conhecimento técnico-científico para melhorar a qualidade da assistência ao paciente cirúrgico.

Palavras-chave: Enfermagem perioperatória. Hipotermia. Enfermagem em pós-anestésico.

RESUMEN: **Objetivo:** Este estudio tiene como objetivo el análisis del conocimiento de los profesionales de la enfermería del cirujano sobre la hipotermia en los pacientes cirúrgicos oncológicos, antes y después de la intervención educativa. **Método:** Trata-se de un estudio descritivo de carácter exploratorio, transversal, de campo y con abordaje cuantitativo. Foran entrevistados 21 profesionales de la enfermería, y los datos fueron recogidos antes y después de una intervención educativa. **Resultados:** El resultado de la aplicación de la prueba debe ser mayor, y una intervención educativa es evidente. **Conclusión:** Diante el hecho, compite en el enfermo o el planeamiento de las intervenciones y el establecimiento de las mediciones para que se cumplan, disminuyendo las complicaciones relacionadas a la hipotermia. Diantediso, es fundamental que el enfermero de cirujano centro norteamericano su equipo de medicina o elo de conocimiento técnico-científico para mejorar la calidad de la asistencia al paciente cirúrgico.

Palabras clave: Enfermería perioperatoria. Hipotermia. Enfermería posanestésica.

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INTRODUCTION

Hypothermia is responsible for extremely deleterious consequences to the body, especially during the intraoperative period. In the first few hours after anesthesia, there is linearly a decrease of 0.5°C-1.5°C in core temperature. General anesthesia contributes to a drop in body temperature by directly inhibiting hypothalamic thermoregulation, causing systemic complications such as sympathetic hyperactivity, (which causes an increase in oxygen consumption), vasoconstriction, reduced platelet function and decreased coagulation cascade, leading to increased blood loss and the consequent need for blood transfusion.¹

Surgical patients require their internal body temperature to be constant so that metabolic functions are conserved. Considering the above, the implementation of methods for maintaining intraoperative patient normothermia is crucial. In addition, providing competent, qualified and individualized care is the responsibility of the multidisciplinary team, and for that each member should focus on different angles in order to prevent hypothermia.^{2,3}

In this scenario, it is up to the nursing team to implement effective interventions that provide for the prevention or treatment of hypothermia and, consequently, the reduction of the complications associated with it. Active (forced-air warming, hot water circulation system) or passive heating methods (thermal insulation materials, such as blankets) should be used during the perioperative period to guarantee the quality of care for the surgical patient.^{2,4,5}

Therefore, understanding about physiopathogeny – including complications and forms of prevention – is important for nursing professionals acting in surgical centers to play their role competently and be able to use this knowledge to assist the patient with quality and safety in situations of hypothermia.⁶

Thus, providing permanent education programs in the surgical center that adequately meet the needs of the collaborators can lead to changes in the activities developed, relating theory and practice to the benefit of the care provided.⁷

The meaningful learning theory proposes a model for the process of assimilation of new information in the cognitive structure. Thus, learning consists of the amplification of this structure through the incorporation of new knowledge, depending on the type of relationship that exists between the ideas already existing in this structure and the new ideas that are internalized, shifting from mechanical learning to significant learning.⁶

On the other hand, learning needs to be substantive, that is, once certain content is learned, one must be able to explain it in their own words. Thus, a concept can be expressed in different words, but still convey the same meaning.⁶

Many surgical center nursing professionals find it difficult to provide care to patients with hypothermia. Usually, the approach is made under stress due to structural, financial, human or technical-scientific difficulties, and lack of knowledge about such condition. In view of this situation, the present study adopts the following question: What knowledge do surgical center nursing professionals have about hypothermia?

OBJECTIVE

This study aimed to analyze the knowledge of surgical center nursing professionals about hypothermia in cancer surgical patients, before and after educational intervention.

METHOD

This is an exploratory descriptive cross-sectional field study with a quantitative approach.

The study population was composed of 21 nursing professionals who provided services directly to patients, that is, nurses ($n = 3$) and nursing technicians ($n = 18$).

Inclusion criteria were as follows: employment relationship, more than one year of practice in the host institution and willingness to participate in the study by signing the informed consent form (ICF). Professionals on vacation or on medical leave were excluded from the study.

The study was performed in a large private and philanthropic hospital based in the eastern part of the city of São Paulo, state of São Paulo, Brazil. The surgical center consists of 10 surgical rooms and 10 postoperative beds, with an average of 450 surgeries per month.

The instrument for data collection was prepared by the authors and contains two parts. The first one includes the characterization of the sample (gender, age, professional category, training time and time of practice). The second part contains eight multiple-choice questions about hypothermia. The questionnaire was applied in the pre-intervention phase and reapplied one month after the educational intervention.

The knowledge test aimed to assess how much nursing professionals knew about hypothermia. The topics covered

included the definition of hypothermia, hypothermia pathophysiology, temperature control, mechanisms of heat loss, mechanisms of active and passive heating and complications due to hypothermia.

Each correct response earned 1.25 point. Total score corresponded to the sum of the score of all correct answers. The data were analyzed using descriptive statistics and the absolute and relative frequencies were represented by numbers and percentages.

Data collection was initiated after the approval of the Research Ethics Committee (REC) of the Brazilian Institute of Cancer Control (IBC) (CAAE nº 49630215.1.0000.0072), respecting the ethical precepts of research with human beings, based on Resolution nº 466/12 of the Brazilian National Health Council. Eligible professionals were invited to participate in the study and received an ICF, which was explained and signed by both the researcher and the participant. Participants responded to the questionnaire individually during the working day and immediately returned it to the researcher.

RESULTS

The present study was composed of 3 nurses and 18 surgical center nursing technicians, who were evaluated regarding the knowledge they had on hypothermia in cancer surgical patients. The sample consisted of all the surgical center staff, since no employees fulfilled the exclusion criteria.

Table 1 shows the sociodemographic and academic data of the 21 nursing professionals, of which 15 (71.4%) were female. Age ranged from 20-50 years, with a prevalence of 1-5 years of professional training (47.6%) and 1-5 years of professional experience (52.3%). Regarding professional category, nursing technicians prevailed with 18 participants (85.71%).

Table 2 shows the variables evaluated in order to verify, before and after the educational intervention, the knowledge of nursing professionals about hypothermia.

DISCUSSION

The results showed that, of the 8 questions answered before the educational intervention, participants scored poorly in 2 questions. They are: hypothermia signs, with 5 correct answers (23.8%) and physiological consequences in the

Table 1. Characterization of the nursing professionals participating in the educational intervention according to sociodemographic and academic variables. São Paulo (SP), Brazil, 2016.

Variables	n	%
Sex		
Male	6	28.5
Female	15	71.4
Age group (years)		
20-30	7	33.3
30-40	10	47.6
40-50	4	19.0
Professional category		
Nurses	3	14.3
Technical nurses	18	85.7
Training time (Years)		
1-5	10	47.6
5-10	6	28.5
10-15	5	23.8
Years of experience		
1-5	11	52.3
5-10	8	38.0
10-15	2	9.5

Source: research data.

Table 2. Scores of participating nursing professionals in questions about the knowledge of hypothermia according to the test items before and after the educational intervention – São Paulo (SP), Brazil, 2016.

Variables	Before n (%)	After n (%)	Difference n (%)
Hypothermia definition	20 (95.2)	21 (100.0)	1 (4.8)
Thermoregulatory Center	13 (61.9)	18 (85.7)	5 (23.8)
Signs of Hypothermia	5 (23.8)	16 (76.1)	11 (52.3)
Physiological consequences in the organism	7 (33.3)	13 (61.9)	6 (28.6)
Heat loss mechanism	1 (52.3)	14 (66.6)	13 (61.8)
Temperature evaluation	11 (52.3)	18 (85.7)	7 (33.4)
Methods and preventive measures of heating	13 (61.9)	18 (85.7)	5 (23.8)
Factors contributing to hypothermia	14 (66.6)	19 (90.4)	5 (23.8)

organism, with 7 correct answers (33.3%). After the educational intervention, the same questions had 16 (76.1%) and 13 (61.9%) correct answers, respectively.

Correct rate for the 6 remaining questions ranged from 52.3-66.6%, which addresses the knowledge about: thermo-regulatory center, heat loss mechanisms, temperature evaluation, preventive heating measures and methods and contributing factors for hypothermia. After the educational intervention, participants had higher correct rate in all questions. However, the item referring to the mechanisms of heat loss had an increase of only 1.27%. Three questions presented 18 correct answers (85.7%), and only one question had 19 correct answers (90.4%).

Thus, it is important to identify risk factors in the intraoperative period that, alone or together, can be controlled to improve complications of hypothermia in patients submitted to anesthesia-surgery/anesthetic procedures.⁸

The prevention of hypothermia is relevant, above all, in patients submitted to medium to large surgeries. Thus, interventions are necessary for hypothermia prevention and maintenance of normothermia in surgical patients.^{9,10}

Maintenance of temperature is an important aspect for patient safety and is responsible for positive surgical results, such as reduction of bleeding, reduction of surgical site infection, reduction of the time spent in the post-anesthesia recovery room, increased thermal comfort — and consequent patient satisfaction — and reduced hospital costs.^{11,12}

Measures to prevent hypothermia include passive or active warming strategies. Passive heating is an effective low-cost method, which consists of covering the patient's skin surface with sheets or blankets during the perioperative period. This strategy can reduce heat loss by up to 30%. Forced-air active heating, in turn, is an efficient method for the prevention of hypothermia in surgical patients.^{13,14}

Insufficient heating may result in a decrease of body temperature by 2-6 °C, leading to surgical complications. Thus, the use of perioperative insulation and heating devices is essential. In clinical practice, passive isolation and the activation of heating systems have often been used to prevent hypothermia during the anesthetic-surgical procedure.¹⁵

Although the combination of forced-air active heating devices with thermal mattress is generally used to warm patients during surgery, there is no sufficient evidence to prove the need for such an association. According to the guidelines of the National Institute for Health and Clinical

Excellence, forced-air heating is the main measure of prevention against hypothermia.¹⁶

The results show the importance of educational interventions for knowledge on hypothermia on behalf of nursing professionals. This means that it is fundamental for surgical center nurses to guide their team and be the link of technical-scientific knowledge in order to improve the quality of surgical patient care. Thus, the qualification processes of nursing professionals must be structured based on their working process contexts.

Nursing professional training requires continuity and permanent education. Training courses should be progressive and transdisciplinary, fostering institutional democratization, development of learning capacities and creativity for health situations, teamwork and continuous improvement of the quality of health. Critical practices and ethical and humanistic issues should also be part of the curriculum.¹⁷

CONCLUSION

Hypothermia during the intraoperative period is common and occurs as a result of an anesthetic-induced thermoregulation disorder due to the surgical procedure and the environment. Therefore, it is necessary to train surgical center nursing professionals to deal with adverse situations.

The present study demonstrated the need for the elaboration of educational programs and a protocol-based care aimed at the prevention or treatment of hypothermia in the perioperative period. This practice should be extended to the entire team, which is a large process that confers, above all, social commitment and credibility to the service provided by nursing professionals to the surgical patient. Thus, this procedure is necessary for the organization and growth of the nursing team and represents an instrument for improving the quality of care. Given this fact, it is the responsibility of the nurse to plan for interventions and set priorities so that goals are reached, reducing the chances of complications related to hypothermia.

The small number of nursing professionals is a limitation of the present study, especially in the group of nurses, composed of only three professionals. We believe that new studies on hypothermia could serve as a stimulus for the acquisition of knowledge by the nursing professionals.

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