Review article

Nursing care against puerperal hemorrhages: integrative review

Cuidados de enfermeiros frente às hemorragias puerperais: revisão integrativa

Cuidados de enfermeros frente a las hemorragias puerperales: revisión integrativa

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Abstract

Objective: to identify the care of nurses in the face of puerperal hemorrhages available in the scientific literature. **Method:** integrative review whose search was performed in the sources of information National Library of Medicine, Embase, Cumulative Index to Nursing and Allied Health Literature Scopus, Web of Science, Latin American and Caribbean Literature in Health Sciences and Scientific Electronic Library Online. **Results:** 31 precautions were found for the management of puerperal hemorrhages, the main ones being the measurement of vital signs and the new technology for blood measurement Quantitative Blood Loss. There was a lack of verification of vital signs and incorrect recording of cases that evolved into postpartum hemorrhage. **Conclusion:** postpartum hemorrhage can be prevented by nursing care. It is necessary that studies be made on the evaluation of the safety globe of Pinard, breastfeeding and mother and baby bond. And those new technologies, such as blood quantification, be added in institutional protocols.
Descriptors: Nurses, Male; Nursing Care; Postpartum Hemorrhage; Postpartum Period; Review

Resumo

Objetivo: identificar os cuidados de enfermeiros frente às hemorragias puerperais disponíveis na literatura científica. **Método**: revisão integrativa cuja busca foi realizada nas fontes de informação *National Library of Medicine, Embase, Cumulative Index to Nursing and Allied Health Literature Scopus, Web of Science*, Literatura Latino-Americana e do Caribe em Ciências da Saúde e *Scientific Electronic Library Online*. **Resultados**: foram encontrados 31 cuidados para manejo das hemorragias puerperais, sendo os principais a aferição dos sinais vitais e a nova tecnologia para mensuração sanguínea *Quantitative Blood Loss*. Evidenciaram-se a falta da verificação dos sinais vitais e registro incorreto dos casos que evoluíram para hemorragia pós-parto. **Conclusão**: a hemorragia pós-parto pode ser prevenida por meio de cuidados realizados pelos enfermeiros. É

necessário que sejam feitos estudos sobre a avaliação do globo de segurança de Pinard, amamentação e vínculo mãe e bebê. E que novas tecnologias, como a quantificação sanguínea, sejam acrescentadas em protocolos institucionais.

Descritores: Enfermeiros; Cuidados de Enfermagem; Hemorragia Pós-Parto; Período Pós-Parto; Revisão

Resumen

Objetivo: identificar los cuidados de enfermeros frente a las hemorragias puerperales disponibles en la literatura científica. **Método:** revisión integradora cuya búsqueda se realizó en las fuentes de información *National Library of Medicine*, *Embase, Cumulative Index to Nursing and Allied Health Literature Scopus, Web of Science*, *Latin American and Caribbean Literature in Health Sciences* y *Scientific Electronic Library Online*. **Resultados:** Se encontraron 31 cuidados para manejo de las hemorragias puerperales, siendo los principales la medición de los signos vitales y la nueva tecnología para medición sanguínea *Quantitative Blood Loss*. Se evidenciaron la falta de verificación de los signos vitales y registro incorrecto de los casos que evolucionaron para hemorragia posparto. **Conclusión:** la hemorragia posparto puede prevenirse mediante el cuidado de las enfermeras. Es necesario que se hagan estudios sobre la evaluación del globo de seguridad de Pinard, lactancia y vínculo madre y bebé. Y que nuevas tecnologías, como la cuantificación sanguínea, sean añadidas en protocolos institucionales.

Descriptores: Enfermeros; Atención de Enfermería; Hemorragia Posparto; Periodo Posparto; Revisión

Introduction

Postpartum hemorrhage (PPH) is one of the main causes of maternal death in Brazil and worldwide. HPP is considered blood loss greater than 500 ml after vaginal delivery and 1000 ml in cesarean sections. In general, PPH results from uterine atony, a condition in which the uterus stops regressing and does not return to its non-gravidic conformation.[1]

In 2013, the global maternal mortality ratio (MMR) was 210 deaths per 100,000 live births. In Brazil, in 2015, there were 62 deaths per 100,000 live births, which, despite representing a drop in this indicator, was insufficient for the country to achieve one of the Millennium Development Goals (MDGs) The United Nations, which aimed at a MMR equal to or less than 35 deaths per 100,000 live births.[2-3] It is ratified that the actions developed in 2015 in relation to the eight MDGs resulted in the Sustainable Development Goals (SDGs). The United Nations worked with governments, civil society and other partners to harness the momentum generated by the MDGs and to advance a post-2015 development agenda, that is, to create the Global Agenda 2030 for Sustainable Development, consisting of 17 objectives. Among these, we highlight the third, which is related to Health and Well-being, which aims to ensure a healthy life and

promote well-being for all, at all ages. With regard to obstetric care, we highlight the decrease in maternal deaths from 70 per 100,000 live births by 2030 globally.[2] In Brazil, this target is even lower, 30 maternal deaths per 100,000 live births.[3]

In 2015, the last world census showed that 303,000 women died during pregnancy, childbirth and postpartum.[4] One in five deaths were due to hemorrhage, and 99% of these deaths occurred in underdeveloped nations.[5] In Brazil, in 2019, 65.7% of maternal deaths were due to direct causes, with PPH being the second largest direct cause of maternal mortality.[4] According to a study that aimed to know the epidemiological profile of maternal mortality in Brazil from 2006 to 2017, Mortality rates in the North and Northeast regions were 71.9 and 74.7 respectively, both higher than the Brazilian rate. The rate of the Southeast Region was 54.7, from the South, 50.5 and from the Midwest, 61.5; which were lower than the Brazilian rate, although still above the targets proposed by the SDGs.[6]

To perform adequate clinical management, nurses need to recognize PPH and identify the etiology of bleeding. Because it is responsible for 80% of puerperal hemorrhages, uterine atony should be the first to be checked.[1] It is important to highlight the "golden hour" in puerperal hemorrhages, in which the team needs to locate the bleeding site within 60 minutes of its diagnosis, avoiding the worsening of the clinical picture, providing greater chances of reversion of this condition and preventing the evolution to maternal death.[7]

Still, the nurse should have full knowledge about the Checklist of prevention and resolution of PPH, namely: evaluate vital signs and measure blood loss, determine the etiology of bleeding through the 4Ts: Tone (evaluate the uterus and its regression), Thrombin (if the mother has coagulation problems), Tissue (if the woman retained some piece of the placenta) and trauma (if there was episiotomy and lacerations).[1,8] It is also necessary to puncture two peripheral calibrous venous accesses and administer physiological solution for permeability of these accesses. In severe conditions one should also collect blood gas, offer oxygen, position the patient in Trendelemburg, perform bladder probing after emptying the bladder, observe signs of hypovolemic shock, perform palpation of the uterus, reevaluate birth canal, collect data from medical records or family members about cases of coagulopathies, and keep the companion

informed.[9]

To ensure the reduction of maternal deaths, nurses play a very important role in the management and prevention of PPH, considering that they are 24 hours at the bedside.[10] It is through basic care that nurses perform, as a measurement of vital signs, Oximetry evaluation and measurement of blood loss, which PPH can be evidenced early, avoiding its evolution to hypovolemic shock and maternal death.[11] It is noteworthy that, although there are checklists for health teams, among them the nurses, PPH remains one of the leading causes of maternal death worldwide. To achieve the goal proposed by the SDGs, it is necessary to reevaluate and/ or effect the care of nurses provided to women during childbirth and postpartum. Given the above, the objective was to identify the care of nurses in the face of puerperal hemorrhages available in the scientific literature.

Method

This is an Integrative Literature Review, which allows aggregating an summarizing the results of several studies in relation to a specific topic.[12] It involves secondary analysis of information already published and, thus, it becomes unnecessary ethical appreciation. The review covered six stages: 1. Outline of the review question; 2. Establishment of eligibility criteria and search strategies; 3. Definition of information to be extracted and analyzed; 4. Evaluation of studies; 5. Interpretation of results; 6. Presentation of the summary of evidence.[12]

First, the design of the review question was carried out, from the acronym PICo:[13] P –Population: nurses; I – Phenomenon of interest: puerperal hemorrhage; C – Context: care practices. Resulting in the question: What is the care of nurses in the face of puerperal bleeding, available in the scientific literature? In the second stage, the inclusion criteria were established: scientific articles that answered the review question, published in Portuguese, English or Spanish, in the period from 2014 to 2021. This cut is justified by the fact that in 2014, the World Health Organization (WHO) defined guidelines for good practices in childbirth and postpartum care, which included the care of puerperal hemorrhages. Still at this stage, there was a sampling in the literature, conducted from October to November 2021 and updated in July 2022, in the following

sources: National Library of Medicine (MEDLINE) via PubMed portal, Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science, Latin American and Caribbean Literature in Health Sciences (LILACS), and Scientific Electronic Library Online (Scielo).

The Search for Studies occurred with the MEDLINE/PUBMED Strategy: (("Nursing"[Mesh] OR "Nursing" OR "Nursings" OR "Nurses"[Mesh] OR "Nurses" OR "Nurse" OR "Nurse's Role"[Mesh] OR "Nurse's Role") AND ("Postpartum Hemorrhage"[Mesh] OR "Postpartum Hemorrhage" OR "Delayed Postpartum Hemorrhage" OR "Immediate Postpartum Hemorrhage" OR (("Postpartum Period"[Mesh] OR "Postpartum Period" OR "Postpartum" OR "Puerperium" OR "Perinatal") AND ("Hemorrhage"[Mesh] OR "Hemorrhage" OR "Bleeding" OR "Hemorrhages"))) AND ("Nursing Care"[Mesh] OR "Nursing Care" OR "Nursing Cares" OR "Nursing Care Management" OR "Critical Care Nursing"[Mesh] OR "Critical Care Nursing" OR "Critical Care"[Mesh] OR "Critical Care" OR "Intensive Care" OR "clinical management")). The Strategy was adapted for each source, considering its specificities.

The third stage involved the definition of the information to be extracted from the selected scientific articles and their categorization. For this purpose, the following information was collected: title; journal; profession of authors; objective; year of publication; country of origin; design (methodological approach, scenario and participants); and main results.

The fourth step involved the evaluation of the studies by hierarchical classification of the level of evidence (NE), from seven levels: 1- systematic reviews or meta-analysis; 2- randomized clinical trials; 3- non-randomized controlled clinical trial; 4- control cases and cohort; 5- systematic reviews of descriptive studies and qualitative studies; 6- evidence of a single descriptive or qualitative study; and 7- reports of expert opinions.[14] For articles in which there was no registration of the design, this classification was not performed. Still, it is noteworthy that, although review articles, case reports and validation do not meet any classification of LEs, were included and significant for this study, given the scarcity of original articles that approached the theme under investigation.

The fifth stage involved the descriptive and interpretative analysis of the findings.

The subsequent stage was characterized by the presentation of the synthesis of the results in the synoptic table.

In the searches in the sources of information, 576 productions were found. The following flowchart illustrates the process of searching and selecting the studies included in the review (Figure 1).
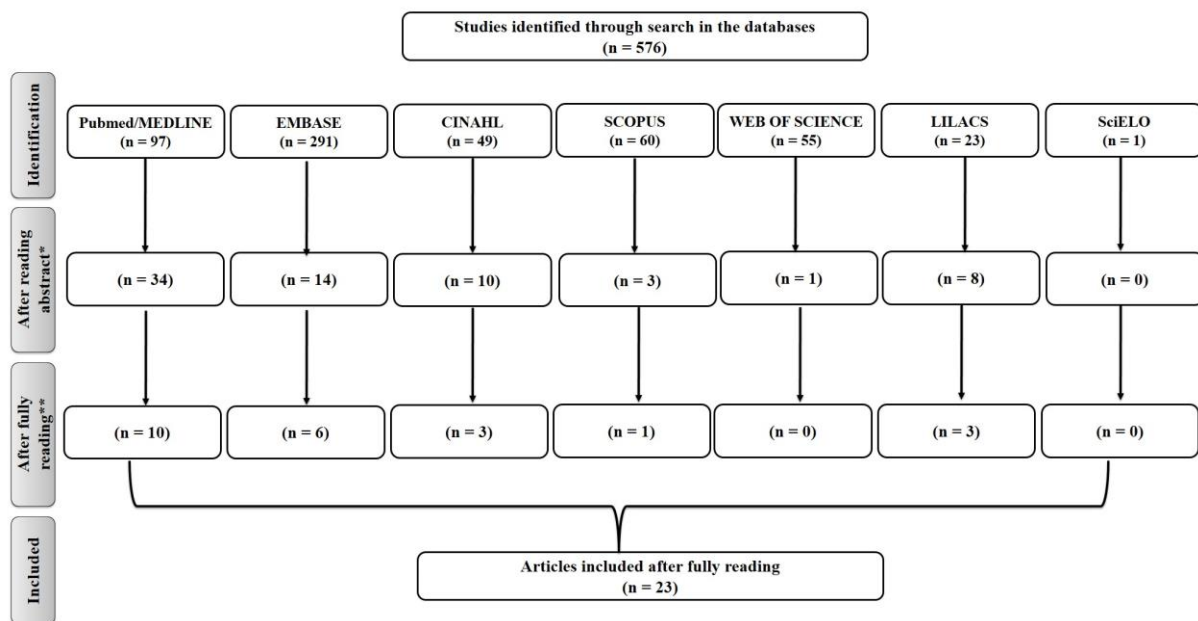

Figure 1 - Flowchart of the selection process of studies included in the review, Florianópolis/SC Brazil, 2022

Note: *Duplicated articles were included only once in the review sample; **Studies that met the inclusion criteria were included.

To reduce bias in the development of the literature review, two researchers conducted the search and selection of studies, the extraction of evidence and the interpretation of results independently. When there was no consensus, a third reviewer was contacted.

Results

Initially, 576 productions were found in the data sources. After reading the titles and abstracts, 506 studies were excluded because they did not meet the inclusion criteria. Thus, 70 studies were fully read, of which 47 did not meet the inclusion criteria.

Thus, 23 articles were included in the review sample. Chart 1 shows the characteristics of the articles regarding year/country, objective, design, level of evidence and main results.

Chart 1 - Synthesis of articles included in the study, Florianópolis/SC, Brazil, 2022

Year/Country	Objective	Methodological approach, scenario and participants	LE	Main results
2014/ Bangladesh[15]	To determine whether the birth attendant (i.e., traditional midwife trained in PPH interventions, traditional midwife not trained in interventions, or lay attendant, who includes a family member or neighbor) is associated with the use of interventions to prevent PPH in home births.	Quantitative study Rural districts of Rangpur division, Bangladesh N = 66,489	6	Buffer and misoprostol use prevented PPH.
2015/ Netherlands [16]	To assess current influencing factors (obstacles and facilitators) for providing high-quality PPH care from both a patient and provider perspective.	Qualitative study N = 12 patients, 41 professionals who participated in a focus group and 315 professionals who completed questionnaires	6	Necessary care that professionals failed to do: urine quantification, weighing blood loss in high-risk patients, warm saline infusion, bimanual compression, communication with team members and classification of high-risk patients. The need for flowcharts and protocols for PPH management in delivery rooms and team training is highlighted.
2015/ United States[17]	To conduct causal analysis of near misses and actual serious patient safety events in obstetric units, including those that resulted in maternal death.	Quantitative study Level 1 trauma center with quaternary obstetric services and four community hospitals N = 94 medical records of women diagnosed with PPH during the 8 months pre- and post-implementation of the Obstetric Vital Sign Alert	6	The Obstetric Vital Sign Alert is a tool that helps the nurse to detect a PPH. The main care involves estimating blood loss, blood transfusion, checking the pulse, assessing blood pressure. After the introduction of the tool that brought the alert for these signs, the intervention dropped to half the time.

		(OBVSA) - Obstetric Vital Sign Alert		
2017/ Brazil[18]	To relate blood loss with complaints, signs or symptoms of blood changes in the puerperium, by measuring the level of Hemoglobin (Hb) and Hematocrit (Ht).	Cross-sectional epidemiological study Obstetrics unit of a hospital N = 100 primiparous	6	Pay attention to the signs and symptoms of PPH: lipothymia, hypotension, tachycardia. Should carry out the evaluation of the mucous membranes in the physical examination, infuse volume as soon as possible, administer medication, check vital signs, in addition to performing active and humanized listening.
2017/ United States[19]	To assess participant comfort with management of obstetric hemorrhage after in-situ simulation multidisciplinary training exercise.	Quality improvement study Tertiary care military medical center N = 113 participants from the Departments of Obstetrics and Gynecology, Anesthesia, Nursing, Pediatrics and Transfusion Services	6	Contact blood bank; manage PPH through massive transfusion. Develop multidisciplinary work and effective communication. After the simulation and training for massive transfusion, there was a decrease in intervention time and a decreasing number of PPHs.
2017/ United States[20]	To review relevant physiological changes of pregnancy that may impact hemorrhage management, summarize causes of obstetric hemorrhage, and describe collaborative approaches to hemorrhage management in this unique population.	Review study	NC	Quantify blood loss; perform the uterine maneuver; empty bladder; use intrauterine balloon; anti-shock clothing; puncture venous access; administer medication as prescribed.
2017/ United States[21]	To assess postpartum nurses' knowledge of maternal morbidity and mortality and information they shared with women before discharge on identifying potential warning signs of postpartum complications.	Cross-sectional study N = 372 nurses	6	Providing evidence-based information about warning signs before discharge is critical for women to be able to recognize such signs and quickly obtain the necessary care.

2017/ United States[22]	To review nurses' skills related to the admission of postpartum women with active hemorrhage and the management of this condition in emergency departments of rural hospitals.	Review study	NC	Initial vital signs, assessment for signs of blood loss (eg, tachycardia, hypotension, pallor, cold skin, and altered level of consciousness). Apply oxygen through a face mask at a flow rate of 10 to 15 L/min to support oxygenation efforts, maintain oximetry, and monitor desaturation that can predict the need for emergency intubation. Staff should monitor vital signs every 15 minutes or more if necessary. The emergency nurse needs to recognize that rapid interpretation of clinical findings is essential. Find out about blood type and contact a blood bank. Postpartum uterine atony, compression massage on uterine fundus, oxytocin administration, bimanual compression 10-60 minutes by doctor or nurse, intrauterine balloon.
2018/ Australia[23]	To describe the results of a state validation study of the estimated volume blood loss (EBL) accuracy and EBL-related data items reported to the Victorian Perinatal Data Collection (VPDC).	Validation study Hospitals N = 737 births	NC	Estimate blood loss in the first 24 hours after delivery; develop a form just to fill in blood loss and PPH. Report quantity and clinical signs. Perform blood transfusion and administration of prophylactic oxytocin; manual removal of the placenta.
2018/ Sweden[24]	To investigate whether hands-on training of the obstetric team improves patient outcome and clinical management of PPH.	Observational study Hospital N = 419 women pre-practical training from the obstetric team and 483 women post-practical training from the obstetric team.	6	Venous access, fluid resuscitation, monitoring of vital signs, and uterine massage are key care in the management of PPH. The training helped professionals to better estimate blood loss and to qualify the clinical management of PPH. He pointed out that the nurse can administer uterotonics in cases of PPH, before the doctor arrives. And that it is essential that the units have a PPH management protocol.

2019/ United States[25]	To educate nurses and physicians on how to shift the practice of visual blood loss estimation to QBL and replace blood loss estimation with QBL in at least 85% of vaginal deliveries over a 3-month period.	Quality improvement study Hospital N = 43 nurses and 17 doctors	NC	Education about the QBL method has raised awareness among nurses and physicians of the importance of using this method as the new standard of care for assessing postpartum blood loss. Accurate measurement of postpartum blood loss is critical to helping prevent maternal morbidity and mortality. Nurses play a key role in developing and implementing changes in practice for using QBL measurement.
2019/ Brazil[26]	Description of the main complications of the puerperium and main nursing care.	Descriptive, exploratory, qualitative study Hospital N = 10 nurses	6	The main care measures to prevent PPH were highlighted: non-invasive hemodynamic monitoring, absorbent-diaper assessment, Pinard safety globe assessment, separating oxytocin according to prescription, breastfeeding, assessment of uterine tone and establishment of the mother-baby bond.
2019/ United States[27]	To review opportunities for quality improvement identified through the review of cases of maternal death from obstetric hemorrhage by the California Pregnancy-Associated Mortality Review Committee.	Described, qualitative study California, United States N = 159 opportunities for quality improvement of pregnancy-related deaths from obstetric hemorrhage	6	Assess vital signs and symptoms of PPH early and identify warning signs; estimate blood loss correctly and communicate effectively with the team.
2020/ United STates[28]	To describe the methodology for implementing the Alliance for Innovation on Maternal Health Safety Bundle program in HPP at Urban Safety-Net Hospital.	Case report of key components for implementing a standardized protocol to improve surveillance and management of obstetric hemorrhage Urban Safety-Net Hospital N = 10 professionals representing obstetric services, maternal-fetal medicine, obstetrics,	NC	Assess PPH risk, implement QBL; assemble and use a bleeding cart; promote a protocol against HPP and adhere to it.

		obstetric anesthesia, labor and delivery nurses, postpartum nurses, nurse educators, pharmacy, health and quality information management		
2020/ United States[29]	To examine the impact of incorporating the QBL into the institution's existing practices and protocols for PPH for all deliveries, using colorimetric and gravimetric analysis, during delivery and postpartum.	Examine the impact of incorporating the QBL into the institution's existing practices and protocols for PPH for all deliveries, using colorimetric and gravimetric analysis, during delivery and postpartum.	6	The use of QBL enabled early detection of hemorrhage and reduced transfusion.
2020/ Ethiopia[30]	To identify substandard care areas and establish recommendations for the management of PPH at Hiwot Fana Specialist University Hospital, eastern Ethiopia.	Before-after case-control study Hospital N = 45 women	4	The audit of hemorrhage management practices revealed that practitioners should improve the measurement of blood loss; obtain transfusion bank and purchase suitable equipment.
2020/ United States[31]	To assess the ability of an automated surveillance system and maternal early warning criteria to detect severely morbid PPH after delivery.	Retrospective observational study Hospital N = 120 deliveries complicated by severely morbid PPH	6	It highlights the importance of a surveillance system that points out the parameters and events during PPH. It reveals that nurses did not measure vital signs correctly, did not record them in the last 2 hours or 40 minutes before the first management was performed.
2020/ New Zealand[32]	To gain better insight into the practice of transfusion management and the clinical outcomes of massive obstetric hemorrhage.	cohort study Australia and New Zealand N = 249 cases of massive obstetric hemorrhage	4	Practices made by professionals to manage PPH: use of oxytocin, communication between the team, classify PPH as an emergency, perform blood transfusion.
2020/ United States[33]	To determine whether PPH-related perinatal outcomes can be improved by combining existing strategies with the use	Performance improvement study Hospital N = 71 maternity providers and 472 nurses completed	NC	The application of e-learning enabled employees to quantify blood loss and introduce a protocol against PPH. There was a reduction in blood transfusion and ICU admission.

	of an assessment-driven online e-learning platform.	training		Women with PPH were stabilized without the need to transfer to a higher level of care. Continuing education strengthens practices.
2021/ Norway[34]	To explore the competence of pre-hospital health professionals in PPH and external manual aortic compression, using different tools.	Cross-sectional study. County in southeastern Norway, including five ambulance stations. N = 87 pre-hospital health professionals	6	Lack of knowledge of health professionals in pre-hospital care in relation to PPH and external manual compression of the aorta. Indicating the need for further education and training in HPP, in addition to the care provided.
2021/ Brazil[35]	To investigate the sociodemographic and clinical factors associated with the prevalence of PPH in a maternity hospital. school.	Quantitative cross-sectional study. Maternity. N = 83 women, data from medical records.	6	Monitoring multiparous women during delivery and encouraging breastfeeding in the first hour of life can decrease the prevalence of PPH.
2021/ United States[36]	To assess students' knowledge before and after participating in a high-fidelity simulation of a patient with PPH.	Pre and post-test quantitative study. University N = 60 nursing students	6	It is necessary to recognize the signs and symptoms (tachycardia, hypotension, patient's complaint of dizziness, and visible bleeding), implement interventions (massage, emptying the bladder, and administration of supplementary medications oxytocin, methylergonovine and misoprostol), and use effective communication.
2021/ United States[37]	To investigate the association of hemorrhage risk assessment with maternal morbidity and to assess maternal outcomes after implementing risk assessment at all hospital sites.	Retrospective cohort study 5 hospitals N = 56,671 women	4	Implementation of a bleeding risk prediction tool that classifies women as at low, medium or high risk of bleeding. It suggests that this tool works moderately well to identify patients at higher risk of obstetric hemorrhage and transfusion and, when implemented, can reduce maternal morbidity rates.

LE = level of evidence; NC = not classified

As for the year of publication, four studies were published in 2021; [34-37] six in 2020;[28-33] three in 2019;[25-27] two in 2018; [23-24] five in 2017;[18-22] two in 2015;[16-17] and one in 2014.[15] Thus, the years 2017 and 2020 stood out, with the majority of publications. Regarding the origin of the articles, the North Americans (United States) stood out, with

ten publications. Brazil had three studies and the other countries, one study each: Ethiopia, the Netherlands, Australia, Sweden, Bangladesh, Norway and New Zealand. Even with few scientific productions, Brazil was the second country to publish more about PPH, behind only the USA.

In general, most articles were written by nurses, and approximately 42% of the authorships were from nurse professors. As for the LE, studies with NE predominated. Regarding the care of nurses in the face of puerperal hemorrhages, six stood out, namely: measurement of vital signs (15.1%), QBL (9%), blood transfusion (7.5%), administration of oxytocin (6%) communication between the team (6.8%) and measurement of blood loss (6%).

In total, 31 precautions were found on PPH, among which: measurement of vital signs; measurement of blood loss; fluid infusion; oxytocin administration; saturation measurement; high orientation; emergency trolley assembly for PPH; QBL; establishment and completion of the blood loss form; manual removal of the placenta; effective communication between team members; diuresis control; bladder emptying; O_2 administration; dress the patient in anti-shock clothing; intrauterine balloon insertion; uterine massage/bimanual compression; and administration of misoprostol.

The other care mentioned by the studies were: non-invasive hemodynamic monitoring; stimulation of the mother and baby bond; evaluation of the Pinard safety globe; evaluation of uterine tone; breastfeeding; infusion of warm saline; adherence to a PPH protocol; contact blood bank; perform blood transfusion; external manual compression of the aorta; monitor multiparous during childbirth care; encourage breastfeeding in the first hour of life; and implement the tool for predicting risk of bleeding.

Some precautions such as QBL were cited only in international articles. Other basic and traditional care, such as an evaluation of Pinard's safety globe, were only mentioned in Brazilian articles. The frequency of nursing care in the face of puerperal bleeding in relation to the total sample of articles is shown in Figure 2.
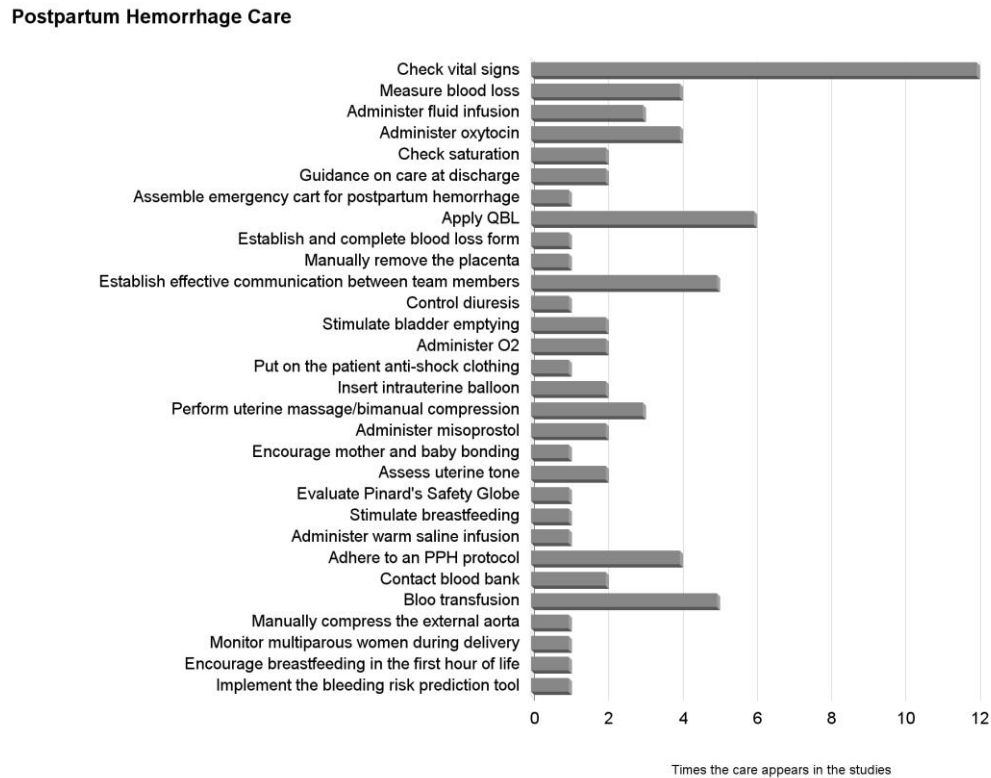
Postpartum Hemorrhage Care

Figure 2 - Number of articles related to care obtained in relation to the total sample of articles, Florianópolis/SC, Brazil, 2022

The care of nurses in the face of puerperal hemorrhages that have been found in the scientific literature reinforces that, through proper clinical management, nurses and their staff can succeed in the management and treatment of PPH and in the prevention of maternal deaths due to hemorrhages.

Discussion

The main care of the nurse listed among the selected articles was the adequate measurement of vital signs.[22,25,27,31,36] In a study conducted in California, in which opportunities for improvement of care of 33 cases of maternal death by PPH were analyzed, We identified the decrease of vital signs records in the medical records and failures in the correct measurement of these. In addition, there was the subjugation of the records of hypotension/hypertension, tachycardia and shortness of breath by the team, delaying the clinical diagnosis of PPH and the intervention in a timely manner.[27]

In Brazil, 20% of postpartum women who had PPH had changes in vital signs,

hypotension and tachycardia.[26] Ratifying the evidence, in a PPH management audit conducted in Ethiopia, Most of the cases showed incorrect and infrequent vital signs measurement by the team, as well as incorrect record of them in the medical record.[30] Faced with this, it is evident the deficit of basic and vital care, inherent in the nurse's work process.

Another predominant care, especially in international studies, was the quantification of blood loss by nurses and nursing staff.[25,29,33,37] This method is internationally known by the acronym QBL (Quantitative Blood Loss). Previously, obstetric units used EBL (Estimative Blood Loss) to quantify blood loss, in which the professional estimated blood loss by individual parameters. Currently, the QBL has been introduced in obstetric units, which uses a standard in the quantification of blood loss through the dry weight of cloths and absorbents and, subsequently, the weight when saturated, being used for weighing the balance for newlyborn already present in units.[28]

In the USA, a hospital that educated its nurses and doctors to use QBL obtained the average difference between estimated and quantified blood loss of approximately 0.30 ml. However, the value was differentiated when evaluated individually according to professional, since a nurse who used QBL to assess the bleeding of a puerperal woman reached the value of 600 ml of blood loss, while a doctor from the team who estimated the loss reached the result of 350 ml, which favored the medical team to accept the new tool.[25]

Although the average difference presented is not so expressive, its measurement was evaluated as positive, mainly by the nurse and their team, since quantities lower than 100 ml before were not recorded and, after the application of the QBL, began to register. Another relevant aspect was that nurses felt safe when they saw PPH, intervened and contacted the team, since the blood loss found was objective, with a real and accurate value.[25]

The QBL proved to be a beneficial and important care for the management of PPH by nurses. A study conducted in the USA showed that, with the adoption of QBL in a hospital ward, there was greater accuracy and, consequently, a decrease in the mean blood volume loss recorded by nurses. However, more patients responded to the PPH criteria, increasing the perception of this event in the ward. In addition, with the

accuracy of blood loss, the diagnosis of PPH became early, favoring an adequate management for its initiation, avoiding invasive interventions such as blood transfusion.[29]

In contrast, another study conducted in the USA, which used EBL from a multicenter database including women admitted to labor and delivery, demonstrated that a high score using this tool on admission is associated with a five times higher risk of blood transfusion and/or loss of 1,000 ml, compared to a low score. This research showed that EBL is relatively effective in identifying patients with a higher risk of morbidity related to bleeding.[37]

A survey in Rio de Janeiro revealed that uterine atony corresponds to 70% of puerperal complications,[26] characterizing the main cause of PPH.[38] Nurses play a fundamental role in this context, since it is the nursing that evaluates the uterine involution and records whether the uterus is regressing as expected or not. In Rio de Janeiro, 90% of nurses evaluated in an obstetric unit mentioned the evaluation of uterine tone as the main care to evaluate and prevent and PPH. However, they did not know how to correctly explain how care is performed, disabling its applicability during clinical care and contributing to the evolution of PPH.[26]

Another important care in the face of uterine atony is massage into the bottom of the uterus. One study brings as important measures of this management the emptying of the bladder and, later, the uterine maneuver (bimanual compression).[38]

A work produced in the Netherlands, with nurses, obstetricians and midwives, on the quality of HPP management, showed that only 26% of professionals were aware of the benefits of uterine compression in PPH.[16] This data demonstrates a failure of nurses in the care of the puerperal woman and in the prevention and management of PPH. Research conducted in Norway corroborates these findings. This study, with health professionals inserted in pre-hospital care, which analyzed the competence in PPH and external manual compression of the aorta, demonstrated the need for a deeper education and training of professionals in relation to care developed in PPH situations.[34]

Moreover, for reversal of uterine atony, the administration of uteratonic drugs is often used, by prescription or pre-established protocols.[22,36] In a publication in Bangladesh, midwives were trained for the use of misoprostol and tampons to prevent

PPH. This training increased the use of interventions by 60% and favored the management of hemorrhage. Oxytocin, a drug recommended by the WHO for the prevention of PPH, can reduce the same by up to 50%.[15] Research has shown that both trained professionals and lay people have the ability to administer the substance.[15]

In a training on PPH management held in the USA, nurses and midwives who noticed clinical signs of PPH used uteratonic drugs before the doctor arrived, achieving better results in PPH management and a positive prognosis for the puerperal woman.[24] Pilot study developed at a university in the USA, based on a simulation carried out with 60 nursing students, indicated the administration of medications in a complementary way to other care for the management of PPH. The medications cited were oxytocin, methylergonovine and misoprostol.[36]

Still, in relation to uterine atony, a care of nurses little mentioned (1.5%) was the evaluation of Pinard's safety globe,[26] reflecting a scientific gap in relation to their practice. Other important care, performed by nurses in the face of detection of PPH and hypovolemia, evidenced in the research,[22] are: puncture of calibrous vessels, contact with the blood bank, administration of O2, performance of diuresis control, administration of fluids according to prescription and monitoring of oximetry.[22,39] In addition to these, strengthening of the mother and child bond and breastfeeding were also found.[26,35]

Among these types of care, the strengthening of the mother and child bond and breastfeeding stand out, in view of the benefits that this practice provides. Breastfeeding is a care guided and strengthened by the nurse that promotes the nutrition of the newborn and the bond mother and baby. In the act of breastfeeding and the interaction of the binomial is that oxytocin is released naturally, favoring uterine involution and, consequently, the prevention and protection against PPH. Furthermore, breastfeeding is a fundamental act for the vitality of the newborn and the recovery of the mother.[40] However, despite the benefits of breastfeeding in reducing the risk of PPH, this care was only mentioned in 1.5% of the articles, which were published in the Brazilian context. This fact shows a gap in this care, especially in international articles.

It is noteworthy that 6% of the studies brought the need and importance of implementing a management protocol for PPH. In a survey conducted in the

Netherlands, it was recorded the relevance of establishing protocols in the units and specifying the actions of each professional. It is also necessary that these protocols are created based on recommendations and guidelines of specialized agencies and that practices are updated and fill the gaps in care.[16]

The study presented limitations regarding the geographic breadth of the productions, and care that in Brazil are considered nurses and internationally are medical care. whereas nurses play a key role in the care of the puerperal woman and in the prevention of PPH and maternal mortality, they need to be attentive to their teams and to the assistance provided, since it is through these actions that the SDGs can be achieved, ahead of the agenda until 2030.

Still, the development of this research reinforced the relevance of the theme addressed, since it was explicit the need to strengthen basic care as a measurement of vital signs, which are inherent to nurses. As well as points out the scientific gaps regarding the updating of care against PPH, also showing new technologies for the management of bleeding not raised in Brazilian works. In addition, the present study may contribute to the development of new protocols and to improve the care of nurses and their staff in relation to PPH, as well as assist in teaching, professionals still in training have access to this knowledge and are aware of the importance of nursing for the prevention of this event.

Some basic care with PPH pointed out in the literature were not addressed with relevance in the studies, such as evaluation of Pinard's safety globe, breastfeeding and mother and baby bond. The information brought in the studies is still insufficient to strengthen these cares or exclude them. In this sense, it is necessary to carry out other research so that such managements are deepened, updated and confirmed. In addition, due to the knowledge gap, new research should be developed in relation to the QBL method, as well as new publications on evaluation of uterine atony and bimanual massage in the nursing area.

Conclusion

The study brought 31 precautions for the management of PPH, exposing that it can be prevented in several ways, especially by nurses and their staff, which can

corroborate with the achievement of the national and global goal in relation to the reduction of maternal mortality rates. There was a need to strengthen basic care practices, such as the measurement of vital signs. The uterine massage performed by nurses has of few studies, as well as the record of uterine involution. When reported in the studies, it brought the difficulties of nurses in performing this management, being necessary to strengthen continuing education within the team.

It was evidenced the need to establish a protocol for the management of PPH, since it standardizes the care and provides guidelines for the nurse and their team to perform their role. Moreover, for the existing protocols, the study brought novelties for updates on blood measurement, being currently necessary its quantification. Only Brazilian studies have brought practices such as encouraging breastfeeding and bonding mother and baby as care against PPH, demonstrating that the country has innovated in relation to practice. Adequate management of PPH can be performed with technological resources that are already available, requiring only the commitment of nurses, the application of knowledge and the integration of care.

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