REME • Rev Min Enferm. 2020;24:e-1344
DOI: 10.5935/1415.2762.20200081

RESEARCH

USE OF UTEROTONICS IN THE THIRD STAGE OF LABOR IN A MATERNITY IN THE MATA MINEIRA AREA

USO DE UTEROTÔNICOS NO TERCEIRO PERÍODO DO PARTO EM UMA MATERNIDADE DA ZONA DA MATA MINEIRA

USO DE UTEROTÓNICOS EN EL TERCER PERÍODO DE PARTO EN UNA MATERNIDAD EN LA REGIÓN DE MATA MINEIRA

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Funding: *Conselho Nacional de Desenvolvimento Científico e Tecnológico* - CNPq - PIBIC/CNPq Scholarship.

Submitted on: 2020/02/02
Approved on: 2020/10/13

Responsible Editors:
Mariana Santos Felisbino Mendes
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ABSTRACT

Objective: to evaluate the use of uterotonics in primiparous parturient during the third period of labor, according to the route of birth and associated care factors, in a maternity hospital in a municipality in the *Zona da Mata Mineira*. **Method:** cross-sectional, descriptive, and analytical study with 222 women. Data collection took place through interviews. The descriptive analysis was performed using relative and absolute frequencies. Pearson's chi-square test was used to identify statistical differences related to the use of uterotonics, in view of sociodemographic characteristics and obstetric care. Poisson regression models were used to estimate the crude and adjusted prevalence ratios. **Result:** more than 80% of the puerperal women received uterotonic regardless of the route of administration. After adjusting for sociodemographic characteristics, it was identified that: not being in labor during hospitalization; having had a normal birth; breastfeed in the delivery room; having a companion in the delivery room; having skin to skin contact; and receiving a massage to extract the placenta were conditions associated with the use of intramuscular uterotonics. It was evidenced that: having been submitted to cesarean section; not breastfeeding in the delivery room; not receiving skin-to-skin contact; and not being subjected to massage to extract the placenta were associated with intravenous use. **Conclusion:** it was concluded that factors of obstetric care are associated with the application of uterotonic in primiparous parturient during the third period of labor, regardless of the route of administration, and that its use is a measure performed for the management of the third period of labor.

Keywords: Labor, Obstetric; Labor Stage, Third; Delivery, Obstetric; Nursing Care.

RESUMO

Objetivo: *avaliar o uso de uterotônico em parturientes primíparas durante o terceiro período de trabalho de parto, segundo via de nascimento e fatores assistenciais associados, em uma maternidade de um município Zona da Mata Mineira.* ***Método:*** *estudo transversal, descritivo e analítico, com 222 mulheres. A coleta de dados ocorreu por meio de entrevistas. A análise descritiva foi realizada mediante frequências relativas e absolutas. O teste qui-quadrado de Pearson foi utilizado para identificar as diferenças estatísticas relacionadas ao uso do uterotônico, tendo em vista as características sociodemográficas e a assistência obstétrica. Modelos de regressão de Poisson foram utilizados para estimar as razões de prevalência bruta e ajustada.* ***Resultado:*** *mais de 80% das puérperas receberam uterotônico independentemente da via de administração. Após ajustes por características sociodemográficas, identificou-se que: não estar em trabalho de parto na internação; ter tido parto normal; amamentar na sala de parto; ter acompanhante na sala de parto; ter contato pele a pele; e*

How to cite this article:
Ayres LFA, Santos KEA, Beirigo BA, Lima VD, Prado MRMC, Henriques BD, Passos CM. Use of uterotonics in the third stage of labor in a maternity in the *Mata Mineira* area. REME - Rev Min Enferm. 2020[cited _____ ___ __];24:e-1344. Available from: _____ DOI: 10.5935/1415.2762.20200081

receber massagem para extração da placenta foram condições associados ao uso do uterotônico intramuscular. Evidenciou-se que: ter sido submetida à cesariana; não amamentar na sala de parto; não receber contato pele a pele; e não ser submetida à massagem para extração da placenta associaram-se ao uso intravenoso. ***Conclusão:*** *concluiu-se que fatores da assistência obstétrica estão associados à aplicação de uterotônico em parturientes primíparas durante o terceiro período de trabalho de parto, independentemente da via de administração, e que seu uso é uma medida realizada para o manejo do terceiro período do trabalho de parto.*

Palavras-chave: *Trabalho de Parto; Terceira Fase do Trabalho de Parto; Parto Obstétrico; Cuidados de Enfermagem.*

RESUMEN

Objetivo: *evaluar el uso de uterotónicos en parturientas primíparas durante el tercer período de trabajo de parto, según la vía del parto y los factores asistenciales asociados al mismo, en una maternidad de un municipio de la región de Mata Mineira.* ***Método:*** *estudio transversal, descriptivo y analítico con 222 mujeres. La recogida de datos se realizó mediante entrevistas. El análisis descriptivo se realizó mediante frecuencias relativas y absolutas. Se utilizó la prueba de chi-cuadrado de Pearson para identificar diferencias estadísticas relacionadas con el uso de uterotónicos, dadas las características sociodemográficas y la atención obstétrica. Se utilizaron modelos de regresión de Poisson para estimar las razones de prevalencia brutas y ajustadas.* ***Resultado:*** *más del 80% de las puérperas recibieron uterotónicos independientemente de la vía de administración. Despés de ajustar las características sociodemográficas, se identificó que: no estar en trabajo de parto durante la hospitalización; haber tenido un parto normal; amamantar en la sala de partos; la presencia de un acompañante en la sala de partos; el contacto piel a piel y los masajes para extraer la placenta fueron condiciones asociadas al uso de uterotónicos intramusculares. Se evidenció que: haber sido sometida a cesárea; no amamantar en la sala de partos; no tener contacto piel a piel y no someterse a masajes para extraer la placenta se asociaron al uso intravenoso.* ***Conclusión:*** *se observó que durante la atención obstétrica hay factores asociados a la aplicación de uterotónicos en parturientas primíparas durante el tercer período del trabajo de parto, independientemente de la vía de administración, y que su aplicación es una maniobra para el control del tercer período del parto.*

Palabras clave: *Trabajo de Parto; Tercer Periodo del Trabajo de Parto; Parto Obstétrico; Atención de Enfermería.*

INTRODUCTION

The assistance provided in the birth process has undergone changes over time, especially in the second half of the twentieth century, when childbirth began to be assisted in a hospital environment. Currently, this practice corresponds to approximately 98% of births in Brazil. Although obstetric procedures contribute to the reduction of maternal and neonatal morbidity and mortality, these interventions are sometimes unnecessary.[1,2]

According to data from the Pan American Health Organization (PAHO), about 830 women die every day in the world due to complications of pregnancy or childbirth. It is known that most of these injuries can be avoided and can be treated; and that factors such as hypertensive syndromes, hemorrhages, infections, complications during cesarean section and the practice of unsafe abortion correspond to approximately 75% of maternal deaths.[3]

Many of these complications can be reduced through adequate obstetric care, based on scientific evidence and with different management according to the stage during which the woman is in the parturition process. The first stage of labor is defined by cervical dilation equal to or greater than 4 centimeters, the second by total dilation of the cervix and expulsion of the fetus. Subsequently, the third begins after the expulsion of the fetus and ends with the detachment of the placenta and its membranes; finally, the fourth stage is the postpartum period and the woman's body restoration.[2]

During the labor and childbirth process, the third stage stands out, in which your assistance changes according to the protocol adopted by the health service, which can vary between active management, expectant/physiological management and, when applied to combination of the two, mixed management.[4] Active management involves the following interventions: use of uterotonics, clamping and early section of the umbilical cord and controlled cord traction after signs of placental separation. Physiologically, routine uterotonic use is not performed; clamping occurs after stopping the umbilical cord pulsation, and the expulsion of the placenta is due to maternal effort.[2,4,5]

Evidence on the most appropriate management is still of low quality.[4] However, active management is recommended, as it is associated with less risk of postpartum hemorrhage (PPH) and blood transfusion.[2,4] For women on low risk for PPH can be chosen for physiological conduct; however, the difference between active and expectant management is uncertain for the reduction of the referred hemorrhage.[4] It is suggested, therefore, that they be guided on the adverse effects of each management[2,4] and that more research be carried out, mainly in countries under development[4], aiming to obtain safer assistance with reduction of the main complications.

In addition, among the main specific complications of the third stage are: PPH, placental retention, need for curettage, use of additional oxytocytes and others.[2,6,7] It is considered that PPH is the leading cause of maternal mortality in the world and that active management reduces its incidence by up to 65% when compared to physiological.[3,4,6,8,9] Active management is preferred for the necessary cases of HPP reduction, as well as for reducing the time of the third phase of the treatment. childbirth.[4] Active management with the use of uterotonics is recommended to

prevent this occurrence in all deliveries.[5,6,10,11] The choice of the type of uterotonic varies according to the country and its use can cause health impacts of women due to adverse effects, such as changes in blood pressure levels, vomiting, headache and marked blood loss.[5]

In 2018, PAHO, in conjunction with the Brazilian Ministry of Health (*Ministério da Saúde* - MS), presented the Zero Maternal Death from Hemorrhage Strategy (OMMxH), with the aim of reducing severe maternal morbidity and mortality in Brazil due to an obstetric event.[11] In this sense, it is understood that analyzing the management of the third stage of childbirth in health services is essential, since from these results it is possible to establish strategies that aim, for example, to improve this type of assistance and, therefore, to reduce maternal mortality from PPH.

The interest in this study comes from the low production of research specifically involving the third stage of childbirth in Brazil and the fact that there are no published works that have addressed this assistance, the processes and procedures used in the care for that period. Thus, this study aims to evaluate the use of uterotonics in primiparous parturient during the third stage of childbirth, according to the route of birth and associated care factors, in a maternity hospital in a municipality in the *Zona da Mata Mineira*.

METHOD

This is a cross-sectional study of a quantitative character on the "Determining factors for deciding the route of birth in primiparous women in a maternity ward in a municipality in the *Zona da Mata Mineira*", which is a reference in high gestational risk and is inserted in a philanthropic institution that offers private care and through the Unified Health System (*Sistema Único de Saúde* - SUS).

The study population were primiparous parturient admitted to the maternity hospital mentioned above. For inclusion in the research, the following criteria were established: primiparous vaginal delivery or cesarean section with live fetus at the beginning of labor. For the sample calculation, a population of 739 primiparous women was considered in 2014; the frequency of cesarean delivery was 71% and that of normal deliveries29% (data obtained in the institution's delivery book). An acceptable margin of error of 5% and a confidence level of 95% were also considered. Therefore, the expected sample was 222 primiparous mothers. The final sample consisted of 203 primiparous mothers considering the use of intramuscular uterotonics (8.6% of sample loss related to non-response) and 191 considering the use of intravenous uterotonics (14.0% of sample loss related to non-response).

The primary data were obtained through the application of a semi-structured questionnaire to the mothers who were hospitalized in the maternity hospital between November 2015 and October 2016. First, the interviewers, previously trained, identified in the hospitalization books records of the operating room and delivery records, all admissions of primigravida or primiparous women. After this identification, the mothers who met the inclusion and exclusion criteria were invited to participate in the research and sign the Informed Consent Form (ICF), and all those who accepted the invitation were interviewed. For adolescents (under the age of 18), the ICF was signed by a legal guardian.

The semi-structured instrument used was developed by the researchers and contained several questions that were grouped into the following sets: sociodemographic characteristics; prenatal care; and obstetric care, with information on the route of birth, labor, delivery and hospitalization. For the present study, sociodemographic and obstetric care information of primiparous mothers was used.

To facilitate further analysis, all the variables used were transformed into dichotomous ones. The characteristics of obstetric care were considered as independent variables: prenatal care financed by SUS (yes; no), labor at the time of hospitalization (yes; no), way of birth (normal or cesarean), lithotomy position at delivery (yes; no), venous hydration (yes; no), Kristeller maneuver (yes; no), episiotomy (yes; no), companion in labor (yes; no), breastfeeding in the delivery room (yes; no) , skin-to-skin contact (yes; no), complications during delivery (yes; no) and massage to extract the placenta (yes; no). And the sociodemographic ones, as control variables: maternal age (14 to 19 years old - adolescents; ≥ 20 years old - adult), race/color (white; black/brown), education in years of study (1 to 8; 9 to 11 ; 12 or more), marital status (with partner; without partner) and family income (lowest income; highest income) (established by the median). Finally, the outcome variables were use of intramuscular uterotonics (yes; no) and use of intravenous uterotonics (yes; no).

The descriptive analysis of the data was performed using relative and absolute frequencies and their respective confidence intervals (95% CI). Pearson's chi-square test was used to identify statistical differences between the use of uterotonics (IM or IV) and sociodemographic and obstetric characteristics, with a significance level of 5%. Subsequently, the association between the use of uterotonics during labor and each obstetric practice was investigated using univariate Poisson regression models, estimating the crude prevalence ratio (PR) and 95% confidence interval (95% CI). Poisson regression with robust variance was used because it is not a rare event in the analyzed outcome, which can be overestimated when using logistic regression models.[12]The multivariate Poisson regression models were constructed for all results that presented a p-value<0.20 in the association analysis of the univariate model. In multivariate models, the association between the use of uterotonics and each selected outcome was tested, adjusted by the control variables already mentioned above. In each multivariate model, the adjusted prevalence ratio (aPR) and the 95% confidence interval (95% CI) were estimated. In the multivariate model, values of p<0.05 were considered significant. To avoid potential sources of bias, in the models presented in this study, in addition to the

control variables, the stratification of results by birth (normal or cesarean) (modifying variable) was used. The data obtained were encoded, categorized, and entered into the database of the Epi Info 7.0 program, transported to Microsoft Excel, version 97-2003, and analyzed by the statistical program STATA, version 13.2.

The study was approved by the institution's ethics committee and later by the ethics committee of a federal university, Opinion Report Nr. 1,147,446.

RESULTS

Most of the evaluated primiparous women were admitted to labor (59.7%); of these, 68.5% had a cesarean section as their route of birth. Regarding the third period of labor, it was observed that most women received the intravenous uterotonic (69.1%). After stratification by birth, it was noted that 80% of those who had a vaginal delivery received the intramuscular uterotonic and 85.8% of those undergoing cesarean section received the medication intravenously. It was found that, among women who had a vaginal delivery, 48.3% underwent massage to extract the placenta; in contrast, among those who had cesarean sections, 98% did not breastfeed in the delivery room (Table 1).

It was observed that there is a difference in the use of intramuscular uterotonics with regard to the following sociodemographic characteristics: age range, range of years of education, living without a partner and range of family income. As for obstetric care characteristics, a difference was detected in the use of intramuscular uterotonics in relation to the performance of prenatal care by SUS, diagnosis of labor during hospitalization, route of birth, breastfeeding in the delivery room, presence of the companion, contact skin to skin and massage to extract the placenta (Table 2).

Table 2 also shows the crude and adjusted prevalence ratios for the use of intramuscular uterotonics according to the obstetric care variables. The crude prevalence ratio was significant for the following variables: she is not in labor (PR=2.67, 95% CI=1.49-4.80); normal delivery (PR=28.59, 95% CI=10.31-79.31); breastfed in the delivery room (PR=3.3, 95% CI=1.85-5.90); companion in labor (PR=2.59, 95% CI=1.33-5.05); skin-to-skin contact (PR=4.4, 95% CI=2.4 - 7.80) and massage for placental extraction (PR=5.46, 95% CI=3.11-9.46).

After adjustment for the control variables (age, race/color, education, marital status, income, financing for prenatal care and diagnosis of hospitalization), the mothers who: were not in labor at the time of hospitalization (aPR=2.3, 95% CI=1.21- 4.34); had a

Table 1 - Obstetric care characteristics in primiparous women according to the birth route, of the total number of women hospitalized in a maternity hospital in a municipality in *Zona da Mata Mineira, Minas Gerais*, Brazil, 2015-2016.

Variables	For allwomen			Vaginal delivery			Cesarean		
	N	%	95%CI	n	%	95%IC	n	%	95%CI
Inpatient diagnosis (n= 211)									
In labor	126	59.7	53– 66.2	23	35.4	24.5 – 48	103	70.5	62.6 - 77.4
Not in labor	85	40.3	33.8 - 47.1	42	64.6	52 - 75.5	43	29.5	22.5 - 37.4
Route of birth (n= 222)									
Caesarean	152	68.4	62.0 - 74.3	*	*	*	*	*	*
Normal	70	31.6	25.7 – 38	*	*	*	*	*	*
Massage for extraction of the placenta (n= 203)									
No	174	85.7	80.1 - 89.9	31	51.7	38.8 - 64.3	*	*	*
Yes	29	14.3	10.1 - 19.8	29	48.3	35.7 - 61.2	*	*	*
Intramuscular uterotonic (n= 203)									
No	151	74.4	67.9 – 89.0	12	20.0	11.5 - 32.4	139	97.2	92.7 - 98.9
Yes	52	25.6	20.0 - 32.1	48	80.0	67.6 - 88.5	4	2.8	1.0 - 7.3
Intravenous uterotonic (n=191)									
No	59	30.9	24.7 - 37.8	40	70.2	56.7 - 80.8	19	14.2	9.2 - 21.3
Yes	132	69.1	62.1 - 75.3	17	29.8	19.1 - 43.3	115	85.8	78.7 - 90.8
Breastfed in the delivery room (n=207)									
No	180	87.0	81.6 - 90.9	37	60.7	47.6 - 72.3	143	98.0	93.7 - 99.3
Yes	27	13.0	9.0 - 18.4	24	39.3	27.6 - 52.4	3	2	0.65 - 6.25

* Values not established and/or not applicable.
The differences between the total number (n) described in each variable refer to the different response rates of the primiparous mothers participating in the study.
Source: analysis of medical records and/or maternal response.

Table 2 - Use of intramuscular uterotonics in primiparous parturient according to sociodemographic characteristics and obstetric care factors, in a maternity hospital in a municipality in *Zona da Mata Mineira, Minas Gerais*, Brazil, 2015-2016. PR 95% CI aPR* 95% CI

Variables	Use ofuterotonic							
	No		Yes		PR	95% CI	aPR*	95% CI
	N	%	n	%				
Sociodemographics								
Adult (>20 yearsold) (n=166)	132	79.5	34	20.5[a]				
Black/Brown (n=134)	102	75.0	34	25.0				
9 - 11 years of study (n=104)	75	72.1	29	27.9[a]				
No partner (n=59)	36	61.0	23	39.0[a]				
Lower income (n=104)	70	67.3	34	32.7[a]				
Obstetric Assistance								
SUS-funded prenatal care (n=124)	82	66.1	42	33.9[a]				
Not in labor (n=82)	49	59.8	33	40.2[a]	2.67[c]	1.49 - 4.80	2.30[c]	1.21 - 4.34
Normal delivery (n=60)	12	20.0	48	80.0[a]	28.6[c]	10.3 – 79.3	30.7[c]	10.4 - 90.7
Delivery position - lying down (n=50)	10	20.0	40	80.0[b]	0.80	0.37 - 1.70		
Breastfed in the delivery room (n=26)	09	34.6	17	65.4[a]	3.30[c]	1.85 - 5.90	3.12[c]	1.69 - 5.75
Venoushy dration (n=32)	09	28.1	23	71.9	0.75	0.41 - 1.34		
Companion in labor (n=119)	78	65.6	41	34.4[a]	2.59[c]	1.33 - 5.05	4.52[c]	2.15 - 9.49
Skin-to-skin contact (n=60)	26	43.3	34	56.7[a]	4.40[c]	2.40 -7.80	4.37[c]	2.41 - 7.93
Delivery complication (n=16)	13	81.3	03	18.7	0.71	0.22 - 2.29		
Massage for placenta extraction (n=28)	04	14.3	24	85.7[a]	5.46[c]	3.11 - 9.46	4.64[c]	2.43 - 8.85

CI: confidence interval; PR: prevalence ratio; aPR: adjusted prevalence ratio.
* Adjusted by age group, race, education, marital status, income, source of financing and diagnosis of hospitalization.
[a] Chi-square test: p <0.05
[b] Wald test: p <0.20
[c] Wald test: p <0.20
Source: analysis of medical records and/or maternal response.

normal delivery (aPR=30.70, 95% CI =10.39 - 90.70); breastfed in the delivery room (aPR=3.12, 95% CI=1.69–5.75); had a companion in the delivery room (PR=4.52, 95% CI=2.15-9.49); had skin-to-skin contact (aPR=4.37, 95% CI=2.41 - 7.93) and who received massage for placental extraction (aPR = 4.64, 95% CI=2.43 - 8.85) had higher prevalence of use of intramuscular uterotonics (Table 2).

It was found that, for the use of intravenous uterotonics, there was a statistically significant difference in all the sociodemographic and obstetric variables analyzed, except race/color. It was also found that primiparous puerperal women who underwent cesarean section, who did not breastfeed in the delivery room, did not have skin-to-skin contact and did not receive a massage to extract the placenta were associated with the use of intravenous uterotonics. in the gross prevalence ratios as well as in the adjusted prevalence ratios, it was identified that: the way of birth by cesarean section (aPR=0.29, 95% CI=0.16 - 0.74); not breastfeeding in the delivery room (aPR=0.36, 95% CI=0.15 - 0.82); not receiving skin to skin contact (aPR=0.54, 95% CI=0.34 - 0.85) and not undergoing a massage to extract the placenta (aPR=0.44, 95% CI=0 – 0.98) are factors that have been associated with the use of intravenous uterotonics (Table 3).

DISCUSSION

The use of uterotonics is recommended for all types of births as a preventive measure for PPH. Oxytocin is the drug of choice for active management; however, it is advisable to use other uterotonic agents or even the association between them in case there is no availability.[10,11] In the present study, almost 100% of the sample received uterotonic agents, regardless of the route of administration.

It is known that PPH is more frequent in developing countries, with a global prevalence of 6%, and that in Africa and Asia it is responsible for 30% of all maternal deaths. In developed countries, such as the United Kingdom and the United States, it is the cause of maternal death in 10.6% and 12%, respectively[9]; in Brazil, by 14.26%.[13] It is worth noting that PPH can cause other types of morbidities, such as acute respiratory distress syndrome (ARDS), disseminated intravascular coagulation (DIC), shock and Sheehan syndrome.[9]

Table 3- Use of intravenous uterotonics in primiparous parturient according to sociodemographic characteristics and obstetric care factors, in a maternity hospital in a municipality in *Zona da Mata Mineira, Minas Gerais*, Brazil, 2015-2016

Variables	For allwomen							
	No		Yes		RP	95% CI	aPR*	95% CI
	N	%	N	%				
Sociodemographics and Obstetrics								
Adult (>20 anos) (n=156)	41	26.3	115	73.7[a]				
Black/Brown (n=127)	43	33.9	84	66.1				
9 - 11 years of study (n=97)	38	39.2	59	60.8[a]				
No partner (n=55)	27	49.1	28	50.9[a]				
Lower income (n=97)	38	39.2	59	60.8[a]				
Obstetric Assistance								
SUS-funded prenatal care (n=116)	44	37.9	72	62.1[a]				
Not in labor (n=78)	33	42.3	45	57.7[a]	0.72[b]	0.50 - 1.04		
Normal delivery (n=57)	40	70.2	17	29.8[a]	0.35[c]	0.21-0.58	0.29[c]	0.16-0.74
Delivery position - lying down (n=49)	35	71.4	14	28.6	0.76	0.21 - 2.65		
Breastfed in the delivery room (n= 24)	17	70.8	07	29.2[a]	0.38[c]	0.18 - 0.83	0.36[c]	0.15 - 0.82
Venoushy dration (n=31)	22	71.0	09	29.0	1.11	0.39 - 3.12		
Companion in labor (n=112)	41	36.6	71	63.4	0.81	0.57 - 1.14		
Skin-to-skin contact (n=58)	31	53.4	27	46.6[a]	0.58[c]	0.38 - 0.89	0.54[c]	0.34 - 0.85
Delivery complication (n=16)	01	6.3	15	93.7[a]	1.40	0.81 - 2.40		
Massage for placenta extraction (n=27)	17	63.0	10	37.0[a]	0.50[c]	0.26 - 0.95	0.44[c]	0.20 - 0.98

CI: confidence interval; PR: prevalence ratio; aPR: adjusted prevalence ratio.
* Adjusted by age group, race, education, marital status, income, source of financing and diagnosis of hospitalization.
[a] Chi-square test: p <0.05
[b] Wald test: p <0.20
[c] Wald test: p <0.20
Source: analysis of medical records and/or maternal response.

For PAHO[11], maternal morbidity and mortality caused by PPH are related to problems of access to health services, care management and the structure of the maternity. In view of this situation, it is corroborated that the application of active management of the third stage of delivery, the strict observation between the first two hours after this and the presence of the companion for the detection of warning signs in low-risk patients are essential practices for the prevention of PPH. It is important to note that this study used uterotonics; but 43% of women did not have a companion during labor.

In a systematic review based on eight studies with 8,892 women, the evidence demonstrated that active management reduced the average loss of maternal blood by more than 500 mL after delivery, which could reduce the incidence of anemia (maternal hemoglobin below 9g/dL) after birth. birth and decrease the need for blood transfusion.[5] However, it is uncertain whether this type of management decreased the risk of severe primary PPH (more than 1,000 mL) after delivery, due to the evidence of the low quality of the studies.

In addition, knowing the profile of these women and identifying the risk factors for PPH is part of the set of good practices. In a controlled clinical trial conducted in Mexico, sociodemographic characteristics, and the use of 10 IU oxytocin intramuscularly and intravenously were observed. It was evident that the majority of women who received the medication had a partner, ideal maternal age and upper-middle schooling, and that these characteristics are repeated for both routes of administration of the drug.[14] Despite the socio-cultural differences between countries, there is a similarity among the study population, which had a majority of adult women (>20 years) and with a partner.

For the women in this research, the normal birth route was decisive in the use of intramuscular uterotonics. This is considered an easy route of administration and, despite presenting a slower action time when compared to intravenous, the action of the drug persists for longer.[15]In a review conducted by Cochrane[17], it was concluded that all uterotonics are effective for the prevention of PPH ≥ 500 mL when compared with the use of placebo or even without treatment.[16] Randomized, double-blind study with

a total of 300 participants in India concluded that intramuscular oxytocin is the safest and most effective uterotonic for prevention of PPH when compared to ergometrine or prostaglandin, both intramuscular.

Additionally, the use of prophylactic oxytocin alone when compared to not using uterotonics can reduce the risk of blood loss of 500 mL after delivery and the need for additional use of another uterotonic, which may be associated with an increase in the time of the third stage of delivery, around 30 min. The effect of oxytocin compared to ergot alkaloids is controversial in relation to blood loss and the need for additional use of uterotonics or blood transfusion. As for oxytocin/ergometrine compared to the use of ergot alkaloids, it was deduced that the former may reduce blood loss, but the evidence is of low quality. In another systematic review, it is highlighted with 30,314 women, in which the efficacy and safety of cabertocin in the prevention of PPH in women undergoing vaginal delivery were evaluated compared to those who used oxytocin, that the former is so effective and safe the second for the prevention of PPH in vaginal birth.[18]

Despite these findings, further studies are suggested to define the appropriate dose, route of administration and the inclusion of other important results, such as, for example, maternal mortality.[5] In several studies it was found that the choice of route of administration remained controversial, although it has been shown that the intravenous use of uterotonics is associated with an increased risk of cardiovascular side effects.[15] In a research carried out in Switzerland, the use of oxytocin (5UI) as well as oxytocin analog infusion after birth. It was found that the use of infusion increased the incidence of adverse maternal outcomes. Although there are no significant changes in these outcomes, it was found that the mode of administration is associated with more need for manual removal of the placenta and greater blood loss in the peripartum.[19] In another study, the administration of intravenous uterotonics was associated with most of the sociodemographic characteristics, complications during childbirth and venous hydration. In this case, it is necessary to maintain the maintenance dose, both for women who had a cesarean section and for those who had a vaginal one.[11] Another systematic review, in three studies in which 1,306 women were evaluated, concluded that there is no clear difference between the risks and the benefits of intramuscular or intravenous oxytocin and it was proposed to carry out further research and high-quality randomized trials to assess the routes of administration and the maternal and child effects.[20]

It is essential to analyze and compare the responses of uterotonic agents and associate them with maternal and care factors, as it allows professionals involved in obstetric care to offer individualized, safer care and with a more positive birth experience for women and their families.[21] Among such care, it is worth highlighting the possibility of allowing managements that respect the physiology of childbirth through an adequate analysis of the perinatal conditions of labor and the assistance offered mainly to women at low risk for PPH.

In this study it was concluded that a mixed management was notorious in the third stage of labor and that a significant association was observed between factors that were not in labor, had a normal delivery, breastfed in the delivery room, were with a companion, performed skin-to-skin contact and received a massage to extract the placenta with the use of intramuscular uterotonics. Despite the abovementioned advantages of using intramuscular uterotonics when compared to the intravenous route during normal delivery and still some gaps, it is assumed that part of the women in this study could have benefited from more physiological management, more autonomy and less intervention unnecessary.

It is believed that breastfeeding in the delivery room and skin-to-skin contact in the first hour of life are considered a form of prevention of PPH, as there is stimulation of the release of endogenous oxytocin.[11,22] In one study, the effectiveness of these practices was investigated immediately after birth and it was found that women, who were not subjected to skin-to-skin contact and breastfeeding, were almost twice as likely to have PPH when compared those who received these procedures. It was also found that this effect is greater for women who have less risk of PPH, but it is emphasized that such practices are effective in reducing the rates of PPH, regardless of the risk of women developing this clinical picture.[22]

However, despite these benefits, it is noted that most women in this study did not breastfeed in the delivery room and did not receive skin-to-skin contact, which confirms the need for the use of uterotonics for these women. In addition, it is understood that the third stage of delivery is not a factor that prevents skin-to-skin contact between the mother and the baby and that it can be done with ease6, and women should be informed of the advantages of this practice during the cycle pregnancy-puerperal in both ways of birth.

According to a systematic review by Cochrane[23], neither breastfeeding nor nipple stimulation had an effect in preventing severe PPH (blood loss ≥ 1,000 mL) and PPH (≥ 500 mL). However, it is worth mentioning that, in the same study, these procedures were indicated for women (with a low risk of bleeding) to prevent possible blood loss.

According to WHO recommendations, there is insufficient evidence that the practice of uterine massage can be used as a treatment for PPH; therefore, it should not be adopted as an intervention, especially by women who received prophylaxis with oxytocin.10 In another systematic review, and meta-analysis of randomized trials, the non-association of uterine massage in the prevention of PPH was also described as part of the management of the third party period.[24] In the results of the present study, 47.1% of the participants who received a massage to extract the placenta also received the intramuscular uterotonic, which is at variance with the recommendations. It is a painful and uncomfortable procedure.

It follows that, between the implications of this study and the practice, there is a need to review the assistance provided in the maternity in question, in order to reduce unnecessary interventions and not based on scientific evidence. However, the prevention of PPH in the third period of labor requires more research that makes the association of product and process technologies and, still, nurses must insert the use of scientific evidence, carry out systematic reviews and develop Nursing protocols for offer good care practices.[25] Therefore, any health professional allocated to obstetric services must consider the evidence for decision-making in clinical practice, and this requires permanent education aimed at improving, ethical responsibility and commitment to the lives of women, newborns, and their families.

Furthermore, the care offered in the study's maternity reinforces the importance of having an effective Nursing team and the insertion of an obstetric nurse, as they are fundamental to offer quality, humanized and safe care practices. These professionals can contribute to more appropriate, unique handling, in making skin-to-skin contact, in encouraging breastfeeding, among other conducts that respect the choices, needs and autonomy of women. In addition, they are essential for the evaluation of postpartum women aiming at the early recognition of excessive bleeding and immediate management in order to reduce the incidence of maternal morbidity and mortality. Finally, it should be noted that the existence of protocols, procedures and technologies does not guarantee the prevention and control of PPH and that the quality and quantity of health professionals are essential to respond to the demands of obstetric services.

A limiting point of the study was the lack of data on controlled cord traction (CCT) and clamping and section of the umbilical cord, as this information was not included in the medical record and women did not know how to answer the question when asked. Both practices are strategies for the active management of childbirth; thus, the training of health professionals is suggested regarding the recording of information in the medical record and the availability of informing women about the procedures to be performed, in addition to encouraging the conduct of research with data collection through non-participant observation.

CONCLUSION

The present study identified that care for the third stage of delivery does not have a specific management pattern. The prevalence of the use of uterotonics according to the route of administration is influenced by the route of birth, with the prevalence of the intramuscular route being observed during vaginal delivery, which is in accordance with the studied literature. There is insufficient evidence to determine which route of administration of uterotonics would be most advantageous, however administration is recommended and is the main intervention for the prevention of PPH.

There was also an association between complications during delivery and the use of intravenous uterotonics. We highlight the low prevalence of skin-to-skin contact and the unnecessary use of uterine massage to extract the placenta, in which almost half of the sample of women who received uterotonics underwent this procedure.

The study has relevance in the public health scenario, since the measures then discussed configure strategies to reduce maternal mortality and, mainly, reflect on the assistance provided to parturient women. The discussion enriches the exercise of all health professionals involved in obstetric care, contributing to the development of practices based on scientific evidence and to the quality of care. Thus, it is proposed a continuing education for these professionals.

Women should receive information about the advantages and disadvantages of each health practice, especially during prenatal care. This is a right and contributes to a participatory, informed, and conscious choice.

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