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OCCURRENCE OF COMPLICATIONS IN THE GESTATIONAL PERIOD IN WOMEN OF ADVANCED MATERNAL AGE

OCORRÊNCIA DE COMPLICAÇÕES NO PERÍODO GESTACIONAL EM MULHERES COM IDADE MATERNA AVANÇADA

APARICIÓN DE COMPLICACIONES EN EL PERÍODO GESTACIONAL EN MUJERES EN EDAD MATERNA AVANZADA

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Objective: to analyze the association between complications and advanced maternal age during pregnancy. Method: retrospective study of quantitative approach based on the analysis of medical records of women of advanced age whose delivery occurred in a teaching hospital in southern Brazil. The collection took place from 2015 to 2018. Analyses were performed using Pearson's Chi-Square and/or Fisher's exact tests, Mann-Whitney U and prevalence ratio. Results: 1,336 medical records were evaluated. Pre-gestational systemic arterial hypertension, preeclampsia and gestational diabetes *mellitus* presented higher mean maternal age. Women aged over 40 years were 1.06 times more likely to develop preeclampsia and 1.33 times to develop intrauterine growth restriction. Conclusion: the increased age showed a relationship with complications, especially in pregnant women aged over 40 years.

Descriptors: Obstetric Nursing. Maternal Age. Pregnancy. Pregnancy Complications. Pregnancy, High-Risk.

Objetivo: analisar a associação entre complicações e idade materna avançada durante a gestação. Método: estudo retrospectivo de abordagem quantitativa baseado na análise de prontuários de mulheres em idade avançada que tiveram parto em um hospital-escola do Sul do Brasil. A coleta ocorreu de 2015 a 2018. Realizaram-se análises recorrendo aos testes Qui-Quadrado de Pearson e/ou exato de Fisher, U de Mann-Whitney e razão de prevalência. Resultados: avaliaram-se 1.336 prontuários. As complicações hipertensão arterial sistêmica pré-gestacional, pré-eclâmpsia e diabetes mellitus gestacional apresentaram maiores médias de idade materna. Mulheres acima de

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40 anos apresentaram 1,06 vezes maior probabilidade de desenvolver pré-eclâmpsia e 1,33 vezes de desenvolver crescimento intrauterino restrito. Conclusão: o aumento da idade mostrou relação com complicações, principalmente em gestantes acima de 40 anos.

Descritores: Enfermagem Obstétrica. Idade Materna. Gravidez. Complicações na Gravidez. Gravidez de Alto Risco.

Objetivo: analizar la asociación entre complicaciones y edad materna avanzada durante el embarazo. Método: estudio retrospectivo del enfoque cuantitativo basado en el análisis de registros médicos de mujeres en edad avanzada que tuvieron parto en un hospital docente en el sur de Brasil. La colección tuvo lugar de 2015 a 2018. Los análisis se realizaron utilizando chi-square de Pearson y/o las pruebas exactas de Fisher, Mann-Whitney U y la relación de prevalencia. Resultados: se evaluaron 1.336 registros médicos. La hipertensión arterial sistémica pre gestacional, la preclamsia y la diabetes mellitus gestacional presentaron una edad materna media más alta. Las mujeres mayores de 40 años tenían 1,06 veces más probabilidades de desarrollar preclamsia y 1,33 veces de desarrollar crecimiento intrauterino restringido. Conclusión: el aumento de la edad mostró una relación con complicaciones, especialmente en mujeres embarazadas mayores de 40 años de edad.

Descriptores: Enfermería Obstétrica. Edad Materna. Embarazo. Complicaciones del Embarazo. Embarazo de Alto Riesgo.

Introduction

Late pregnancy or pregnancy at advanced maternal age, which occurs in women aged 35 years or older, is related to complications in the gestational period due to the higher probability of evolving to negative outcomes. Thus, it is considered by the Ministry of Health (MH) as high-risk pregnancy[1]. Complications stem both from ovarian senescence itself and from the increased frequency of age-related chronic diseases. Thus, as pregnancy is postponed, the greater the susceptibility of women to risks in the gestational and puerperal periods[2-3].

In this sense, studies indicate, in relation to the mother, increased risk for hypertensive syndromes – including preeclampsia (PE) and eclampsia, gestational diabetes *mellitus* (GDM), hemorrhages, fetal death (FD). As for infants, the risk increases for low birth weight, prematurity and low APGAR index[2-4].

According to the literature, in recent decades, the incidence of pregnancies in this age group has been increasing, among other reasons, due to the creation of policies aimed at women's health and the incentive to reproductive planning. This allowed women to gain more space in the labor market and better educational level. Thus, they began to postpone the pregnancy, in order to achieve goals in the professional career[5].

In Brazil, over the years, the number of children is decreasing, as well as birth and fertility rates. Despite this, there is an increase in the number of live births from women aged 35 years or older. According to a survey conducted in the database of the Department of Informatics of the Unified Health System (DATASUS), in 2007, of the total live births in the country, about 9.7% were pregnant women of advanced maternal age. When comparing this datum with the year 2017, the number of births increased to 14.4%, which represents an increase of more than 50%. Thus, considering that the average of general births did not change, there is a trend to increase births in this population progressively[6].

In this sense, nurses play a determining and central role in the gestational path of those women, as they direct nursing care in prenatal, childbirth and postpartum care, in addition to acting in health education actions aimed at the prevention and early identification of health problems of pregnant women[7]. There is little scientific production in the nursing area on pregnancy in advanced age and its consequences.

Considering the increase in this population worldwide in recent years and the trend to postpone pregnancy to older ages, this theme is not exhausted. Therefore, this study is justified

due to the emerging nature of the theme for Nursing and the few subsidies for nursing care focused on this population. Thus, the aim of this study is to analyze the association between complications and advanced maternal age during pregnancy.

Method

This is a retrospective study of quantitative approach, based on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) tool. This research is based on medical records and has been developed at a federal teaching hospital in Southern Brazil, of tertiary, public care, co-managed by the Brazilian Hospital Services Company (Ebserh) since 2014, a reference in outpatient and hospital care to high-risk pregnancy.

Medical records of women aged 35 years or older who had a delivery at the institution between 2011 and 2017 were included in the study. Within the universe of 1,796 deliveries of women aged 35 years or older in this period, a sample of 1,336 women (sampling error of 2.5% and significance level of 95) was evaluated. The medical records were selected by stratified random sampling.

Data collection was performed from December 2015 to October 2018, in a computerized way, through a structured questionnaire, built in Epi Info 7 software and operationalized by two students, one scholarship holder and another volunteer, both from the Scientific Initiation Program of the National Council for Scientific and Technological Development (CNPq). The students had a training that consisted of presenting the research project and explaining the use of the tool for collection. There was a meeting to simulate the data collection, with the form inserted in the software, as well as moments to resolve doubts. After these steps, 10 pilot tests were collected in the field to evaluate the functionality of the form in the software. All test records were included in the sample.

The survey questionnaire with 25 questions was elaborated based on the form of the Monitoring System of the Program of Humanization in Prenatal and Birth (SISPRENATAL), including sociodemographic, obstetric and clinical variables, divided into:

a) sociodemographic: advanced maternal age (35 to 40 years;> 40 years); marital status (partner or husband; separated, divorced or widowed; single); color/race (white; black; yellow; brown; ignored); education (illiterate; <8 years; 8-12 years;> 12 years; ignored); income (≤ one minimum wage; two to three minimum wages;> three minimum wages; ignored);
b) obstetric: gestational age (when preterm newborns were considered, those with less than 37 weeks; at term, from 37 to 41 incomplete weeks; and post-term, those with 42 weeks or more); number of consultations during prenatal care (below six consultations; six consultations or more); parity (primiparous - without previous births; multiparous - with at least one previous birth); type of delivery (vaginal, cesarean);
c) clinical: complication in current pregnancy (PE; eclampsia; GDM; premature labor; placenta previa (PP); hemorrhages; intrauterine growth restriction (IGR); DF; obesity); pre-existing complications (systemic arterial hypertension (SAH); diabetes mellitus (DM); thyroid diseases; heart diseases; human immunodeficiency virus (HIV); respiratory diseases; psychiatric disorders; syphilis; IGR in previous pregnancy). The use of these complications is justified because they are the most cited as having the highest risk, when considering the age group of 35 years or more [2,4].

The analysis was performed at IBM SPSS software version 18.0 for Windows with frequency analysis (absolute distribution and percentage). In order to evaluate the relationship between maternal age, sociodemographic data and complications in the gestational period, bivariate analyses were used using Pearson's Chi-Square

test (x^2). In cases where the requirements for x^2 application were not met, Fisher's exact test was applied.

Moreover, the normality of the variable advanced maternal age was evaluated using the Kolmogorov-Smirnov test, which did not meet the requirement of data normality (p-value<0.000). After that, mean-aged advanced age and maternal complications were compared using the Mann-Whitney U-test. To evaluate the association between advanced maternal age and complications during pregnancy, the prevalence ratio test was applied. The significance level assumed in the tests was 5% (p-value < 0.05).

The research is part of a larger project approved by the Ethics Committee of the researched institution, under Opinions n. 1.155.166/2015 and n. 3.182.968/2019, and Certificate of Presentation of Ethical Appreciation n. 46154615.7.0000.0096. There was no signing of an Informed Consent Form because it was a research in medical records. However, the other aspects of Resolution n. 466/2012 of the National Health Council were fully respected.

Results

Medical records of 1,336 women of advanced maternal age from 2011 to 2017 were evaluated. The mean age was 39.5 years (±3.06), with minimum and maximum of 35 and 51 years, respectively. There was a predominance of the age group from 35 to 40 years, with 889 women (66.5%). Regarding sociodemographic and obstetric characteristics, only schooling showed a relationship with advanced maternal age (p=0.011) (Table 1).

Table 1 – Sociodemographic and obstetric characteristics of women of advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336)

Variable	n	%	Advanced Age		p*
			35 - 40 years	> 40 years	
Race/color (n=1,320)					0.145
White	1,161	88	765	396	
Black	113	8.6	83	30	
Yellow or Brown	46	3.4	27	19	
Marital Status (n=1,328)					0.073
Partner or husband	1,029	77.5	684	345	
Separated, divorced or widowed	78	5.9	44	34	
Single	221	16.6	156	65	
Education (n=1,196)					0.011
Illiterate	18	1.5	11	7	
< 8 years	253	21.2	148	105	
8 - 12 years	750	62.7	497	253	
> 12 years	175	14.6	129	46	
Income (n=415)					0.547
Less than or equal to 1 minimum wage	67	16.1	39	28	
2 - 3 minimum wages	222	53.5	145	77	
Over 3 minimum wages	126	30.4	82	44	
Parity					
Primiparous	244	18.3	170	74	0.241
Multiparous	1,092	81.7	718	374	
Type of Delivery					0.107
Vaginal	556	41.6	383	173	
Cesarean	780	58.4	505	275	
Delivery gestational age (n=1,325)					0.862
Preterm	284	21.4	185	99	
Term	1,005	75.8	672	333	
Post-term	36	2.7	24	12	

Source: Created by the authors.

* Pearson's Chi-Square Test

Regarding the evaluation of pre-gestational diseases, 728 (54.5%) presented some kind. When comparing mean age and pre-gestational diseases, women who had SAH before pregnancy had higher mean age (p=0.013) (Table 2).

Table 2 – Comparison of means between pre-gestational diseases and advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336)

Pre-gestational diseases	Advanced maternal age				
	n	%	Mean	Standard Deviation	p*
Systemic Arterial Hypertension					0.013
No	1,036	77.5	39.40	3.05	
Yes	300	22.5	39.86	3.06	
Diabetes *mellitus*					0.971
No	1,250	93.6	39.51	3.06	
Yes	86	6.4	37.33	3.02	
Thyroid Diseases					0.801
No	1,125	84.2	39.48	3.01	
Yes	211	15.8	39.64	3.29	
Heart Diseases					0.145
No	1,270	84.2	39.53	3.07	
Yes	66	15.8	38.94	2.76	
HIV					0.823
No	1,277	95.6	39.50	3.03	
Yes	59	4.4	39.58	3.62	
Respiratory Diseases					0.418
No	1,286	96.3	39.52	3.07	
Yes	50	3.7	39.02	2.96	
Psychiatric Disorders					0.060
No	1,140	85.3	39.45	3.07	
Yes	196	14.7	39.82	2.96	
Syphilis					0.437
No	1,312	98.2	39.50	3.06	
Yes	24	1.8	40.00	3.30	
Intrauterine growth restriction (n= 949)					0.078
No	924	97.4	39.27	3.07	
Yes	25	2.6	40.08	2.50	

Source: Created by the authors.

* Mann-Whitney U test.

When comparing the mean maternal age with complications during pregnancy, statistically, women who manifested PE (p=0.017) and GDM (p=0.026) had higher mean ages. The other variables did not present statistical differences (Table 3).

Table 3 – Comparison of means between maternal complications during pregnancy and advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336) (continued)

Maternal complication during pregnancy	Advanced maternal age		
	Mean	Standard Deviation	p*
Pre-eclampsia			0.017
No	39.39	2.98	
Yes	39.98	3.34	
Eclampsia			0.063
No	39.51	3.06	
Yes	37.33	2.73	

Table 3 – Comparison of means between maternal complications during pregnancy and advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336) (conclusion)

Maternal complication during pregnancy	Advanced maternal age		
	Mean	Standard Deviation	p*
Gestational diabetes *mellitus*			0.026
No	39.40	3.05	
Yes	39.82	3.07	
Premature labor			0.490
No	39.48	3.03	
Yes	39.92	3.48	
Placenta Previa			0.230
No	39.50	3.07	
Yes	39.90	2.37	
Hemorrhage			0.657
No	39.50	3.62	
Yes	39.65	2.94	
Fetal Death			0.853
No	39.51	3.07	
Yes	39.47	2.93	
Oligo/polyhydramnios			0.537
No	39.49	3.06	
Yes	39.65	3.00	
Obesity (n=653)			0.421
No	38.86	2.79	
Yes	38.33	2.17	

Source: Created by the authors.

* Mann-Whitney U test.

When evaluating the relationship between complications and maternal age, advanced maternal age presented a statistically significant relationship only with PE (p=0.009). When assessing the prevalence ratio between complications and maternal age, women aged over 40 years were 1.33 times more likely to develop IGR (1.33; 95%CI: 1.31 - 1.36) than those aged between 35 and 40 years (Table 4).

Table 4 – Association between maternal complications during pregnancy and advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336) (continued)

Maternal complication during pregnancy	Advanced Maternal Age				p*	Prevalence Ratio (95% Confidence Interval)
	35 - 40 years		> 40 years			
	n	%	n	%		
Pre-eclampsia					0.009	
No	731	68.1	342	31.9		1
Yes	157	59.7	106	40.3		1.06 (1.02 – 1.12)
Eclampsia					0.448†	
No	883	66.4	447	33.6		1
Yes	5	83.3	1	16.7		0.87 (0.68 – 1.13)
Gestational diabetes *mellitus*					0.059	
No	688	67.6	329	32.4		1
Yes	200	62.7	119	37.3		1.04 (0.99 – 1.08)
Premature labor						
No	839	66.5	422	33.5	0.460	1
Yes	49	65.3	26	34.7		1.01 (0.93 – 1.10)

Table 4 – Association between maternal complications during pregnancy and advanced maternal age. Curitiba, Paraná, Brazil – 2015-2018. (N = 1,336) (conclusion)

Maternal complication during pregnancy	Advanced Maternal Age				p*	Prevalence Ratio (95% Confidence Interval)
	35 - 40 years		> 40 years			
	n	%	n	%		
Placenta Previa					0.089	
No	873	66.8	434	33.2		1
Yes	15	51.7	14	48.3		1.11 (0.98 – 1.26)
Hemorrhage					0.116	
No	878	66.7	438	33.3		1
Yes	10	50.0	10	50.0		1.12 (0.97 – 1.30)
Intrauterine growth restriction					0.308	
No	875	66.6	438	33.4		1
Yes	13	56.5	10	43.5		1.33 (1.31 – 1.36)
Fetal Death					0.799	
No	851	66.5	428	33.5		1
Yes	37	64.9	20	35.1		1.01 (0.92 – 1.11)
Oligo/polyhydramnios					0.969	
No	834	66.5	421	33.5		1
Yes	54	66.7	27	33.3		1.00 (0.92 – 1.08)
Obesity (n=653)					0.154	
No	456	75.0	152	25.0		1
Yes	38	84.4	7	15.6		0.92 (0.84 – 1.02)

Source: Created by the authors.

* Pearson's Chi-Square Test. † Fisher's exact test.

Discussion

Pre-gestational SAH, PE and GDM complications were related to higher mean maternal age. Moreover, women aged over 40 years were more likely to develop PE and IGR.

The Brazilian and international literatures bring hypertensive syndromes during pregnancy (gestational hypertension, PE, eclampsia, HELLP syndrome) and GDM as predominant complications in pregnant women of advanced age. SAH is the main risk factor for this type of complication[2,4,8-10], in addition to IGR being a common outcome associated with placental disorders caused by circulatory/vascular problems[11-13]. In this sense, the complications found here form a pathophysiological "tangle" of simultaneous causes and consequences.

The IGR was 1.33 times more likely to occur in women aged over 40 years. This complication is caused by poor placental perfusion related to vascular problems. Of maternal causes, hypertensive diseases are the factors that are most associated with severe cases of IGR, as they affect the transfer of nutrients and oxygen to the fetus. The maternal clinical conditions that most cause IGR are PE, DM and SAH[1,14]. In this direction, a systematic review[2] found the IGR rate of 4% for 74 studies analyzed. Despite the small percentage, based on statistical tests, the authors suggest an increased risk of IGR for pregnant women in advanced age, especially those aged 40 years or older.

In relation to pre-existing hypertension, in this study, a significant difference was found with higher mean maternal age. Aging is believed to lead to gradual loss of compliance of the cardiovascular system, due to a decrease in the ability of vasodilator-dependent response of the endothelium, which causes greater total peripheral vascular resistance, which may lead to increased pressure. Therefore, the predisposition of women of advanced age to hypertensive complications in pregnancy can be explained by the difficulty of the cardiovascular system to adapt to the woman's condition in this situation, which causes hemodynamic changes that compromise gas and nutrient exchanges to the fetus[15].

Thus, hypertensive syndromes as well as GDM are equally associated with negative

outcomes in relation to the newborn. The most frequent are prematurity, low birth weight[2-3,8-9], hospitalization in the Neonatal Intensive Care Unit[2,8-9]. Although these latter aspects were not part of the analysis of this study, the due importance should be given for the assessment of those risks.

Although not statistically significant in this study, PP and hemorrhages are important complications that are associated with women's age during pregnancy. It is considered important to pay attention to these two outcomes, especially in women with hypertensive disorders. Hemorrhagic situations can occur in both first and second trimesters of pregnancy. Abortion, ectopic pregnancy, premature placental detachment, uterine rupture and PP are some of the main causes of hemorrhages during pregnancy[1]. On the other hand, those that occur in the postpartum period can be triggered by uterine atony, surgical trauma related to cesarean section and by PP or placenta accreta. Furthermore, advanced maternal age, multiparity[13] and hypertensive syndromes, including PE, are important risk factors that contribute to the occurrence of hemorrhages[11].

Thus, it is clear in the literature that, although hemorrhagic situations are a multicausal obstetric disorder and are not invariably linked to PP, advanced maternal age and hypertensive disorders, at some level, all these problems present physiological relationship. All those aspects are interconnected and more likely to occur in women of advanced age.

The problems presented show that the complications to which women are submitted permeate the risk of maternal morbidity, but also have consequences for the health of the fetus/baby. Therefore, attention to this population becomes more serious and necessary. In this sense, nurses are a key piece, in order to establish a dynamic of both physical and biological care and dialogue, embracement and listening[7].

As for the other variables related to the complications analyzed, none showed a significant relationship with the age groups surveyed. However, they require care and caution to be evaluated in order to consider the individuality of each woman. Considering all the factors that indicate the inherent increased risk in late pregnancies, increased attention is needed to avoid future undesirable results for both the mother and the baby.

Among the sociodemographic data, the only variable that presented significant difference, when related to age groups, was schooling. An integrative literature review[5] showed, among other factors, that the profile of women who become pregnant aged 35 years or older, at the international level, has a high level of education, work with good pay, marital stability and pregnancy planning. Nevertheless, this study shows that only 175 (14.6%) of the participants had a level of education with over 12 years of schooling, which configures admission to higher education. The other aspects mentioned in the review were not analyzed here, but national studies show that Brazil does not present the profile of higher education, nor of other characteristics, as causes for the postponement of maternity[10,16].

The aspect of schooling may be a risk factor for developing maternal complications, mainly including PE and GDM[8-9]. Moreover, it is a condition that, associated with the socioeconomic pattern, is responsible for interfering in the understanding of the health situation itself[10]. In the case of women in late pregnancy, although many do not present physical signs of complication outcomes, they need to receive clear importance of regular and rigorous prenatal follow-up, especially if morbidity is related to hypertension or GDM, as they may trigger systemic decompensation requiring more invasive interventions.

From another perspective, a study[17] found a protective effect of schooling in pregnant women aged 41 years or older. It pointed out that women with a higher level of education had similar or even lower risks of adverse outcomes during pregnancy, when compared to those with 21 to 34 years. The authors suggest that this effect may have resulted from the indirect association with economic factors, as well as

from the direct association with the woman's ability to understand the orientations received from health professionals.

The economic pattern in this study was analyzed based on the income variable. Although not statistically significant, it showed the monetary profile of the women treated at the hospital surveyed. It is noteworthy that 415 medical records had these data filled out, configuring just over half of the sample. Of these, 222 (53.5%) reported that women received two to three minimum wages, which, even by Brazilian standards, is a low income range, being classified as class D.

The research scenario is public and serves, in its entirety, through the UHS. Thus, socioeconomic level and education represent the population assisted in this type of service. It is important to note that 921 (68.9%) medical records had the data related to neglected income. It is necessary to look at this gap, which is an indicator of social risk that can limit the professional in the development of a care plan.

This result is added to other sociodemographic characteristics of women with late pregnancy that are in line with the profile of late pregnant women reported by international studies[17-18]. Moreover, national studies are in agreement with the characteristics presented in this research, because Brazil, despite following the trend of postponement of pregnancy, is still a developing country that differs from those reasons for postponing pregnancy[5,8,10,16].

Regarding obstetric characteristics, although none presented a significant association, it is still important to argue that the data shown in the literature differ from those exposed here. Especially regarding the route of delivery, authors show the increased maternal age strictly related to the prevalence of cesarean sections, both elective and emergency[3-4,9,19].

In this study, no more accurate tests were performed to verify this relationship. The frequency of cesarean sections was 58.4% and, although it suggests that it is a relatively high number, it is close to the national rate of 55.6%. The data of the present study are in agreement with the Brazilian reality, suggesting that the sample studied may be representative in this aspect. In this scenario, the World Health Organization (WHO) states that cesarean rates above 10% do not decrease maternal and neonatal mortality, not bringing benefits when used arbitrarily. Nevertheless, it also states that the concern of health agencies should be related to ensuring the correct and necessary indication of cesarean section, to the detriment of the search for a specific optimal rate[20].

There are several pre-existing conditions of women that can trigger problems in pregnancy. Therefore, the health team and, especially, nurses, should be attentive to data collection during prenatal consultations, in order to identify real and potential complications of women and, thus, plan the care necessary for each one[7].

Some important limitations are the incompleteness of the information in the medical records, especially those related to income, as well as the fact that the data were filled out by other professionals, making it impossible to confirm the accuracy. Moreover, the fact that there is no comparing group in the age considered ideal for pregnancy (20 to 34 years) and the non-evaluation of the relationship between maternal complications and neonatal outcomes can also be considered limitations, requiring other analyses. Furthermore, data collection in a single institution can be considered a limitation, which hinders the generalization of findings. However, for being a large hospital, with reference service for the state of Paraná, the results might also be consistent with other scenarios and can contribute to the improvement of care for pregnant women in advanced age.

Conclusion

Pregnant women aged 40 years or older were more likely to develop IGR and PE. As age increases, SAH, PE and GDM may occur more frequently. Health professionals, especially nursing, need to join efforts to prevent and intervene in potentially unfavorable outcomes capable of resulting in fetal and/or maternal

deaths, as well as to formulate and follow care protocols and public policies, in order to instrumentalize and promote improvements in the quality of care of those pregnant women. Pregnancy in advanced age, as a phenomenon that grows increasingly in the world, although with different profiles in each region, should be studied by nursing, as it tends to be a recurrent reality soon.

Collaborations:

1 – conception, design, analysis and interpretation of data: Juliane Dias Aldrighi, Suelen da Silva Ribeiro, Andressa Kachel Chemim, Marilene Loewen Wall and Samuel Spiegelberg Zuge;

2 – writing of the article and relevant critical review of the intellectual content: Juliane Dias Aldrighi, Marilene Loewen Wall and Adriana Aparecida Piler;

3 – final approval of the version to be published: Juliane Dias Aldrighi, Suelen da Silva Ribeiro, Andressa Kachel Chemim, Marilene Loewen Wall, Samuel Spiegelberg Zuge and Adriana Aparecida Piler.

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