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ORIGINAL PAPER

Maternal and neonatal repercursions of pregnancy in adolescence

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Abstract

Objective: To compare the influence of maternal age on birth weight and other related factors. Methods: the present study consists of a retrospective cohort carried out in two public maternity hospitals in Maceió - Brazil. The sample consisted of 84 puerperal women (28 adolescents and 56 aged between 20 and 30 years) and their respective newborns. Results: Teenage pregnancy was significantly associated with low birth weight, inadequate prenatal consultations number, disproportionate Roher Index, father and mother of the child not living in the same household and prematurity. A difference of 471.5g occurred in newborns from young adult mothers compared to children of teen mothers. The use of alcohol, drugs and contraceptive methods did not obtain statistical significance. Conclusions: Due to the unfavorable socioeconomic and perinatal conditions of teen mothers compared to young adults, maternal age less than 16 years seems to have influenced the lower mean birth weight and the association of low birth weight and delayed uterine growth in this group of adolescents.

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INTRODUCTION

According to the World Health Organization (WHO), adolescence is characterized as the period of life that begins at the age of ten and ends at the age of nineteen. According to art. 2 of the Statute of Children and Adolescents (Law n.8.069, of July 13, 1990): "For the purposes of this Law, a child is considered to be a person up to twelve years of age and an adolescent between twelve and eighteen years old"[1].

According to the Ministry of Health, teenage pregnancy decreased by 17% in Brazil between 2004 and 2015 due to the expansion of assistance programs and greater access to contraceptive methods; however, the data are still alarming, with around 400,000 cases per year. The region with the highest number of children of teenage mothers is the Northeast, with 32% of cases according to data from SINASC (Information System on Live Births), followed by the Southeast and North[2].

Teenage pregnancy is evidently a public health problem due to its unwanted repercussions for the mother and the newborn. For the mother, it promotes interruption of school life and pre-existing socioeconomic aggravation. As for the neonate, there are factors that increase the risks until the first year of life, such as premature birth, low weight (intrauterine growth retardation), length less than 48 cm and lack of pediatric medical follow-up in regular visits and failures in the vaccination scheme[3]. Thus, it is necessary to compare the birth conditions of newborns of adolescent mothers with newborns of young adults.

In this context, low birth weight (LBW) then becomes a major challenge, as it is defined by the World Health Organization as a newborn with a birth weight below 2,500 g[4], which results in higher morbidity and mortality related to the group in question[5]. Another related important fact is defining the newborn's body proportionality, which goes beyond the single concept of low birth weight. In this way, mathematical tools such as the Roher index are instituted: IP = weight (in grams) x 100 / (length in centimeters)^3 to understand and classify the child's body proportionality[6].

There are factors that increase the negative risks of pregnancy in adolescence, such as age younger than 16 years or occurrence of the first menstruation less than 2 years ago, which justifies the phenomenon of double anabolism, which is characterized by biological competition between mother and fetus for the same nutrients; therefore, the mother in this particular age group is still growing and under pubertal maturation; non-performance or less than six routine visits; lack of support from both family and partner[4].

As sociology assures, pregnancy as well as adolescence are social phenomena, which are influenced by the place and historical moment[7]. There are several risk factors that influence teenage pregnancy, however, the lack of information about sexuality, about sexual and reproductive rights stand out as the main reason[2]. Picanço says[8] "Human sexuality is a historical construction that permeates the sociocultural and is transformed according to affective relationships", therefore, the context in which the adolescent is inserted has influence on the problem.

According to Kassar[9] "Adolescent pregnancy has also been associated with low socioeconomic status, poor prenatal care, lower weight gain during pregnancy and anemia, when compared to pregnant women outside of adolescence."

METHODS

This is a retrospective cohort study carried out to compare the maternal conditions and their newborns from adolescent women aged less than or equal to 16 years, with that of newborns of young adult mothers (20 to 30 years old). This comparison group was chosen because it corresponds to the best time for procreation from a social and biological point of view.

This study was carried out in the city of Maceió, capital of the State of Alagoas, Northeastern Brazil, in two maternity hospitals that assist pregnant women in the Unified Health System (SUS) - Hospital Veredas and Hospital Universitário Professor Alberto Antunes (HUPAA). Twin pregnancies and those with suspected congenital infections or those that resulted in malformed newborns were not included. Postpartum women with incomplete information were also excluded from the study.

The selection criterion adopted was of a random nature, used for each puerperal adolescent identified in the ward on the day of the interview the following record of two other mothers aged between 20 and 30 years. Mothers were interviewed after delivery and filled out forms containing open and multiple-choice questions. Following the norms of the Ethics and Research Committee, all interviewees agreed to participate in the study by signing the Free and Informed Consent Term (TCLE) for older postpartum women and the Free and Informed Assent Term (TALE) for women aged under 18 years old.

Weight and length were assessed by the pediatrician shortly after birth. The Roher index (PI) is given by the following formula: PI = weight (in grams) x 100 / (length in centimeters)^3, thus, newborns were classified as proportional (if PI = 2.49) and disproportionate (if PI < 2.49).

The use of alcohol and tobacco was studied according to its occurrence without considering the amount consumed and the time of exposure during pregnancy. The use of a contraceptive method prior to pregnancy, the performance of prenatal care and also whether the parents live in the same house were analyzed. Prenatal care was considered unsatisfactory when the pregnant woman attended less than six consultations. Gestational age was determined by the date of the last menstrual period (LMP) and confirmed with physical examination of the newborn using the Capurro method.

Data were analyzed using the Open Epi program, version 3.01. The significance test used to compare differences in proportions was the uncorrected chi-square test.

The study was approved by the Ethics and Research Committee of Centro Universitário Tiradentes - Maceió, Alagoas.

RESULTS

The age range of the group of teenage mothers ranged from 13 to 16 years. The predominant age was 16 years (53.57%).

The highest low birth weight, prematurity (<37 weeks of gestation), father and mother of the child who do not live together, disproportionate Roher index (PI < 2.49), number of inadequate prenatal consultations (<6 consultations) were more frequent in adolescent mothers (p<0.05). The use of alcohol, cigarettes and contraception did not show statistical difference between the groups of mothers.

The average birth weight of children from adolescent mothers was 2,884.1g (SD 625.15) against 3,355.6g (SD 617.13) for young adult mothers. The difference of 471.5g in favor of newborns from older mothers was significant (p<0.001), as shown in the t Test Table 1.

Table 2 shows that the low-birth weight percentage was higher among the adolescents. (p=0.03290).

Gestational age < 37 weeks, as shown in Table 3, is evidenced in the group of adolescent mothers (p = 0.03492), with a higher number of preterm infants in this group. The question about the parents of children who live together was significant, with 60.7% of teenage mothers against 82.1% of young adult mothers. The Roher Index was the most significant variable in the study (Table 4). The number of adequate prenatal consultations was statistically significant (p=0.03932).

However, the use of alcohol and cigarettes during pregnancy showed no difference between the groups, p=0.4058 and p=0.3722, respectively.

Regarding the use of contraceptive methods, there is no relationship between the use of any of the methods and the women's age (p=0.1085); with the answer 'no' from 57.14% adolescent mothers and 42.85% from young adults.

DISCUSSION

According to data obtained from the study in question, adolescents carry out less than six gestational follow-up consultations, that is below the number recommended by the Ministry of Health. In adolescents who receive adequate prenatal care, associated with conditions such as healthy habits and emotional support, the risk factors associated with teenage pregnancy can be reduced[10]. According to Vazlle 2012, the possible gestational complications associated with teenage pregnancy are spontaneous abortion, intrauterine growth restriction, pre-eclampsia and eclampsia, premature birth, intrapartum acute fetal distress and cesarean delivery[11].

Data obtained from this study corroborate the results from several papers in the literature. According to the Brazilian Society of Pediatrics (SBP), children from adolescent mothers are born small for gestational age (SGA) and with low birth weight[3]. The Roher index obtained was significant, and according to the literature, the greater the degree of intrauterine growth retardation, the greater the body disproportionality of the newborn[6].

Data obtained for the makeup of this study corroborate the knowledge obtained in the literature from several articles. According to the Brazilian Society of Pediatrics (SBP), the children of adolescent mothers are born small for gestational age

Table 1. t-test table.

Maternal age (years)	N	$\bar{X}$	±	SD	Significance level
≤16 years	28	2884	±	625	t = -3.28
20 - 30 years	56	3355	±	617	p = 0.001506

Table 2. Comparing maternal age and low-birth weight.

	AGE			
Birth weight	**≤ 16 Years**	**20 - 30 Years**	**Total**	%
< 2.500g	05	03	08	9.52
≥ 2.500g	23	53	76	90.47
Total	**28**	56	84	100
p-value*	-	-	0.03290	-

*uncorrected chi-squared.

Table 3. Gestational age.

	AGE			
Gestational age	**≤ 16 YEARS**	**20 - 30 YEARS**	**Total**	**%**
< 37 weeks	08	07	15	17.85
≥ 37 weeks	20	49	69	82.14
Total	**28**	**56**	**84**	**100**
p-value*	-	-	0.03492	-

*Uncorrected chi-squared.

Table 4. Roher's Index.

	AGE			
Roher's Index	**≤ 16 Years**	**20 - 30 Years**	**Total**	**%**
< 2.49	13	05	18	21.42
≥ 2.49	15	51	66	78.57
Total	**28**	**56**	84	**100**
Valor - *p**	-	-	0.00003932	-

*Uncorrected chi-squared.

(SGA) and with low birth weight[3]. The Roher index obtained was significant, and according to the literature, the greater the degree of intrauterine growth retardation, the greater the body disproportionality of the newborn[6].

Adolescents who live in a stable relationship, that is, who live with their partner and are responsible for their children, have less social vulnerability. However, this could not be seen among the adolescents who took part in the present study, which is a negative point both for them and for their children[12].

Thus, according to our data, low birth weight, reduction in the number of follow-up consultations during pregnancy and not living with the child's father, are associated with teenage pregnancy; while other data such as alcohol consumption and illicit drugs use, contraceptive methods were inconclusive, and require further studies.

According to the literature, motherhood in adolescence can be minimized by protective factors that modify, improve or alter personal responses to risks, namely: the existence of support networks and the adolescent's family cohesion. Likewise, it may be a consequence of risk factors such as socioeconomic level, lack of support networks, lack of psychological support, and the age of the adolescent's parents. Another risk is the early initiation of sexual life associated with lack of information about contraceptive methods, and the lack of support programs for adolescents[13].

In this context, as a protective measure for children and adolescents, in 2019 the law establishing the National Week for the Prevention of Pregnancy in Adolescence was enacted, in accordance with art. 8 of the Statute of Children and Adolescents (Law n.8.069, of July 13, 1990): "The National Week for the Prevention of Pregnancy in Adolescence is established, to be held annually in the week that includes February 1st, with the aim of disseminating information about preventive and educational measures that contribute to reducing the incidence of teenage pregnancy.", such a measure is of great value, given the deficiency of this topic in everyday life[1].

Due to the unfavorable socioeconomic and perinatal conditions of adolescent mothers when compared to young adults, maternal age of less than 16 years seems to influence the lowest mean birth weight and the greater association of low birth weight and intrauterine growth retardation in the group of teenagers. Therefore, it is necessary to interfere with educational measures about teenage pregnancy as well as support networks; since this problem is seen as a public health problem and directly affects the health of children.

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