Analyzing clinical obstetric complications in pregnant adolescents by the Robson Classification

Análise das complicações clínico-obstétricas em gestantes adolescentes segundo a Classificação de Robson

Análisis de las complicaciones clínico-obstétricas en adolescentes embarazadas según la Clasificación de Robson

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ABSTRACT
Objective: to analyze obstetric complications in pregnant adolescents using the Robson Classification. **Method**: in this quantitative study, 150 medical records of high-risk adolescent pregnant women were searched between September and November 2019, after approval by the research ethics committee of Alagoas Federal University. **Results**: by the Robson Classification, cesarean section rates in group 1 were twice as high as recommended (18.92%). Group 2 returned 100% cesarean section, while the recommendation is 20 to 35%; group 4 showed 100% vaginal deliveries; and, in groups 5, 8 and 10, these exceeded the number of cesarean sections by about 15.40 to 20%. **Conclusion:** using the Robson Classification, it was shown that pregnant adolescents affected by a clinical obstetric complication were delivered by cesarean sections, which increased in groups 1, 2, 5, 8 and 10.
Descriptors: Obstetric Nursing; Pregnancy in Adolescence; Risk; Classification.

RESUMO
Objetivo: analisar as complicações obstétricas de gestantes adolescentes por meio da Classificação de Robson. **Método:** trata-se de uma pesquisa quantitativa documental. Foram pesquisados 150 prontuários de gestantes adolescentes de alto risco. O estudo foi de setembro a novembro/2019 e iniciou após a aprovação do Comitê de ética em Pesquisa da Universidade Federal de Alagoas. **Resultados:** as taxas de cesáreas do grupo 1 foram o dobro do recomendado (18,92%), pela Classificação de Robson. No grupo 2, houve 100% de cesárea, enquanto recomendação é de 20 a 35%. No grupo 4 observou-se 100% de parto vaginal, enquanto os grupos 5, 8 e 10 excederam o número de cesáreas em cerca de 15,40 a 20%. **Conclusão:** evidenciou-se, por meio da Classificação de Robson, que o tipo de parto das gestantes adolescentes que foram afetadas por uma complicação clínico-obstétrica foi o parto cesáreo, com aumento nos grupos de gestante 1, 2, 5, 8 e 10.
Descritores: Enfermagem Obstétrica; Gravidez na Adolescência; Risco; Classificação.

RESUMEN
Objetivo: analizar las complicaciones obstétricas en adolescentes embarazadas mediante la Clasificación de Robson. **Método:** se trata de una investigación cuantitativa documental. Se investigaron 150 historias clínicas de adolescentes embarazadas de alto riesgo. El estudio fue de septiembre a noviembre/2019 y se inició después de la aprobación del Comité de Ética en Investigación de la Universidad Federal de Alagoas. **Resultados:** Las tasas de cesáreas en el grupo 1 fueron el doble de lo recomendado (18,92%) según la clasificación. En el grupo 2, hubo 100% de cesáreas, mientras que la recomendación es del 20 al 35%. En el grupo 4, el 100% tuvo parto vaginal, mientras que los grupos 5, 8 y 10 superaron el número de cesáreas en aproximadamente del 15,40 al 20%. **Conclusión:** queda claro, a través de la Clasificación de Robson, que el tipo de parto de las adolescentes embarazadas que se vio afectado por una complicación clínico-obstétrica fue el cesáreo, con incremento en los grupos de embarazadas 1, 2, 5, 8 y 10.
Descriptores: Enfermería Obstétrica; Embarazo en Adolescencia; Riesgo; Clasificación.

INTRODUCTION

When pregnancy occurs during adolescence, there is a series of biological, psychological, social and economic implications, as adolescent mothers have a higher risk of adverse social outcomes and short-term health problems[1]. Therefore, the Ministry of Health considers maternal age as one of the determinants of gestational risk[2].

Pregnant adolescents have fewer prenatal consultations and higher rates of non-attendance, higher frequency of low-weight newborns and, in addition to that, most of their pregnancies are unplanned, which can lead to greater risks of complications and fetal harms, due to occasional maternal exposure to medications, alcohol and drugs[2]. Therefore, the complications that affect these women imply outcomes that may permanently harm their obstetric history. To exemplify, in Brazil, in 2017, almost 40% of the adolescents underwent cesarean deliveries[3].

In view of this, it is fundamental to understand the behavior of these obstetric complications, as well as their outcomes for the mothers and their children. Since, after a previous cesarean delivery, the risks are higher for a second cesarean delivery[4] and for obstetric hemorrhage, due to the increased likelihood for the occurrence of dehiscence and uterine rupture[5].

Thus, to understand the relationship between the complications in pregnant adolescents and the obstetric outcomes, Robson's Ten Group Classification System was used in this research. This system, by the World Health Organization, must be used worldwide as a standard instrument for the purpose of assessing, monitoring and comparing cesarean rates over time and across hospitals[6].

The groups that make up this classification system are based on five obstetric parameters: obstetric history, onset of labor, fetal position, number of fetuses and gestational age, which allows knowing the profile of the pregnant women most subjected to cesarean deliveries[7].

In this context, the following guiding question emerged: According to Robson's Classification, what is the behavior of the obstetric outcomes of pregnant adolescents who were affected by complications? Thus, the objective of this study was to analyze the obstetric complications of pregnant adolescents by means of Robson's Classification.

THEORETICAL FRAMEWORK

Pregnancy in adolescence and maternal mortality are associated. In Brazil, in 2017, more than 12% of the maternal deaths were in women aged 10 to 19[8]; it is therefore necessary to understand the causes and consequences that lead to unfavorable obstetric outcomes. In view of this, it becomes fundamental to know the delivery outcomes of these pregnant adolescents.

It is valid to point out that the high number of cesarean deliveries in adolescents is worrisome. The "*Nascer no Brasil*" ("Being Born in Brazil") report points out that, between 2007 and 2012, 42% of the adolescents were subjected cesarean sections[9]. This data is alarming, since women who start their reproductive life early tend to have more children and, therefore, will be exposed to more risks in future pregnancies[10].

These data demonstrate a mismatch between the care provided to parturient adolescents and what the Ministry of Health recommends. Because it must be ensured that the adolescent has a companion during prepartum, delivery and puerperium, since such presence reduces the chances of complications. In addition, stress is related to the prolongation of labor increasing the chance that the adolescent will undergo a cesarean delivery[10].

The cesarean section is the surgical act of incising the abdominal region and the uterine wall of the pregnant woman with the purpose of extracting the fetus that is developing inside[11]. This surgical intervention is the procedure of choice when the lives of mother and fetus are at risk. It is fundamental to monitor the rates of cesarean deliveries in hospitals considering the characteristics of these women during hospitalization. The Classification is simple, reproducible, clinically relevant and prospective. Thus, every hospitalized pregnant woman can be classified before delivery in one of the 10 groups[6].

The Classification assists hospitals to optimize the use of cesarean sections by identifying, analyzing and focusing interventions on specific groups that are of local relevance and assessing the efficacy of strategies and interventions designed to optimize the use of cesarean sections[5]. In addition to that, it is indispensable to assess quality of care, of the data contained, of the clinical care and the outcomes by group, as well as it is fundamental that the entire multidisciplinary team is attentive to the importance of this record[6].

Thus, the relevance in studying which groups of women have cesarean deliveries is perceived, especially when it comes to adolescents who present age as a risk factor during pregnancy and, therefore, are more likely to develop a complication.

METHOD

This is a descriptive, retrospective and documentary study with a quantitative approach. It was conducted in the Professor Mariano Teixeira maternity ward of the Professor Alberto Antunes University Hospital in the municipality of Maceió.

The research was conducted with 150 medical records. The inclusion criteria were as follows: medical records located and identified of pregnant adolescents, aged from 10 to 19 years old, with clinical-obstetric complications discovered during pregnancy, during 2017 and 2018. And the exclusion criteria were the following: medical records lacking information relevant for the research, thus being considered incomplete.

For data collection, a structured form was designed with the objective of organizing the identification data, the obstetric history, the complications, and the outcomes of pregnant adolescents. From then on, the project was

sent to the Ethics and Research Committee of the Federal University of Alagoas and, after approval, data collection was initiated.

The research was developed under the guidelines of Resolution No. 466 of December 12th, 2012, which approves the rules for research involving human beings, incorporating the following from the perspective of individuals and collectives: bioethics frameworks such as autonomy, non-maleficence, beneficence, justice and equality, among others, and aims to ensure the rights and duties that concern the research participants, the scientific community and the State.

The Research Ethics Committee approved the study on 09/10/2019 under protocol No. 3,606,169. And then data research was initiated. The risks offered were minimal, since there was no contact with the research participants, as well as there were no benefits to them.

The Free and Informed Assent Form was prepared, as well as the Free and Informed Consent Form (FICF) for the guardians, since this was a research with minors under 18 years old; however, it was not necessary to use them during data collection because the research was restricted to documentary analysis and, thus, there was no contact with the participants. The data were tabulated and analyzed in Microsoft Office Excel 2013, and graphs, columns and tables were later created aiming at a better visualization of the results.

RESULTS AND DISCUSSION

Obstetric profile of the pregnant adolescents

The aim was to understand the profile of the pregnant adolescents who were admitted to the high-risk reference maternity ward and who presented some obstetric complication. It was observed that most of the adolescents were in their first pregnancy, but it is important to point out that a small portion of them were in their second pregnancy. These data follow the same line of a study carried out in the state of São Paulo, in which 48.3% were in their first pregnancy and 25.6% had two or more pregnancies. It is noteworthy that the aforementioned study classified both second and third pregnancies in the same group[11,12].

As for parity, in this study most of the women were nulliparous and 13.33% were primiparous. A similar parity profile was found in a study carried out in Nigeria, in which 94.12% were nulliparous and 5.33% primiparous[13]. Regarding the number of miscarriages in these women, this study pointed out that a significant portion had already had an abortion, a fact that deserves attention from the professionals. A study on miscarriage in adolescence is associated with the development of psychiatric disorders after the event. This demonstrates that the adolescents in situations of abortion need a quality reception[14].

Obstetric complications diagnosed in pregnant adolescents

With the objective of understanding the complications of these pregnant adolescents and their influence on the obstetric outcomes, it was sought to know the main complications that affect them. Of the complications found, three stood out: hypertensive syndromes (17.33%), followed by premature labor (16.00%) and by Gestational Trophoblastic Disease (6.67%).

There was a difference in the predominance of these complications according to the age group. Adolescents aged from 10 to 14 years old had predominance of premature labor. Those belonging to the age group of 15 to 19 years old presented predominance of hypertensive syndromes, as shown in Figure 1.

Hypertensive syndromes were the most prevalent complications, an aspect that confirms that these pathologies are considered an important cause of severe morbidity, prolonged disability and death of mothers and babies. Hypertensive disorders during pregnancy are the leading cause of maternal death worldwide[15]. Thus, it becomes clear that it is a problem that must be investigated in pregnant adolescents.

The other complication that stood out in this study was premature labor. The literature is almost unanimous in asserting that the association of pregnancy in adolescence and the socioeconomic and cultural aspects in which adolescents are inserted are determining risk factors for prematurity and low weight to occur[16]. An analysis carried out in the state of Acre showed that there were 626 premature births in the city of Rio Branco, of which 25% were cases of adolescents aged between 10 and 19 years old. This shows that adolescents represent a significant portion of these cases[17].

Followed by these complications, Gestational Trophoblastic Disease was also present in a significant number. However, it is noteworthy that, in the state of Alagoas, there is a single reference hospital for the occurrence of gestational trophoblastic disease, which was the locus of this research. In a recent paper comparing South American and North American reference centers, the percentage of molar pregnancies was over 30% in adolescents in Latin America, and 13% in North America[18]. Of the 2,190 cases seen in 32 years at the Gestational Trophoblastic Disease Center of *Irmandade Santa Casa de Misericórdia* in Porto Alegre, 25% were adolescents[19].
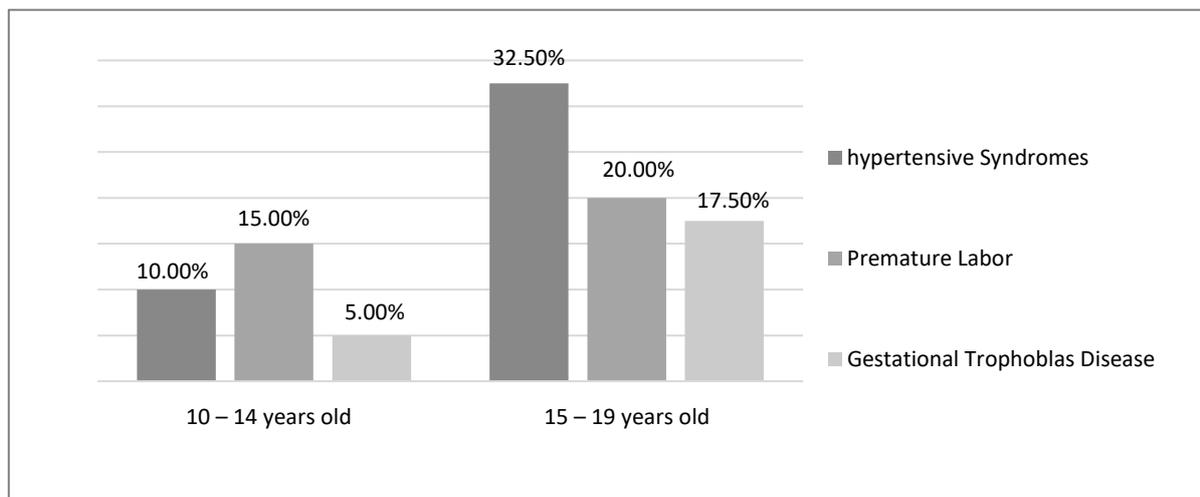
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FIGURE 1: Main complications of pregnant adolescents treated in a high-risk maternity ward by age groups, 10 to 14 years old and 15 to 19 years old, in the 2017-2018 period. Maceió, AL, Brazil, 2019.

The other clinical-obstetric complications found showed values below 6% of the total number of pregnant women participating in this research. These complications were as follows: vulvovaginitis, urinary tract infection, premature rupture of ovular membranes, psychiatric disorder, premature placental abruption, and fetal malformation. Additionally, rh alloimmunization, maternal heart disease, pyelonephritis, hematological disorders, diabetes mellitus, oligohydramnios, intrauterine growth restriction, epilepsy, sickle cell anemia, cystitis, chorioamnionitis, seizure, labor dystocia, gestational diabetes mellitus, miscarriage, viral hepatitis C, vulvar hematoma, hydronephrosis, human immunodeficiency virus, cervical intraepithelial neoplasia, myomatous nodule, and fetal death also presented low percentiles in this study[18,19].

Analysis of the obstetric outcomes of pregnant adolescents who presented obstetric complications, according to Robson's Classification

In view of the complications presented, in this study, the maternal and fetal outcomes of these adolescents affected by problems during pregnancy were investigated. This analysis is of great importance, since cesarean section is associated with a greater chance of maternal death and postpartum infection[20]. As for the type of delivery, half of the participants had vaginal deliveries and half had cesarean deliveries.

Regarding the factors associated with cesarean delivery among primiparous adolescents, those with a schooling level appropriate to their age, those in later adolescence and belonging to higher economic classes have a greater proportion of cesarean deliveries. Meanwhile, those in classes C, D and E have a reduced number of cesarean deliveries[19].

The type of delivery in this study agrees with that assertion, since the women in the older age group (15 to 19 years old) underwent more cesarean sections, while those in the younger age group (10 to 14 years old) had vaginal deliveries, for the most part. Most of the pregnant adolescents under study were classified in groups 1 and 10 of Robson's Classification. No pregnant adolescents fitted in groups 3, 7 or 9 of the Robson's Classification. Those in group 1 are nulliparous, with a single fetus, cephalic, greater than or equal to 37 weeks, and in spontaneous labor[5]. These had a higher number of vaginal deliveries (81.08%). This is a result that is in accordance with the Brazilian national rates since, in 2017, pregnant women aged from 10 to 19 years old, and classified in group 1, had 68% of vaginal deliveries throughout Brazil[21].

The World Health Organization organized Robson's interpretations for each rate of cesarean deliveries; in this systematization there are recommendations on what the rate of cesarean deliveries should be for each group. For group 1, it is highlighted that rates lower than 10% are possible. However, in the pregnant women in this study, the number of cesarean deliveries was almost two-fold (18.92%) when compared to the expected by Robson's recommendations. The other group found was group 2, nulliparous women with a single fetus, cephalic, greater than or equal to 37 weeks, with induced deliveries or who were subjected to cesarean sections before the start of labor[6]; of these, all underwent cesarean deliveries. The Brazilian rates of the pregnant adolescents classified in group 2 indicate that 50% were subjected to cesarean sections[21].

Given the above, it can be seen that the obstetric complication led all pregnant adolescents in group 2 to undergo cesarean deliveries. According to the interpretation of Robson's recommendations, group 2 consistently has a cesarean rate of 20% to 35%[22]. In this research, it is perceived that all the pregnant women underwent cesarean deliveries, which shows a high rate compared to the one that is expected.

Those in group 4 are the multiparous women without previous cesarean deliveries, with a single cephalic fetus greater than or equal to 37 weeks in spontaneous labor[6], all of whom had vaginal deliveries. The Brazilian data are similar to those found in this research because, in 2017, 67.26% of the pregnant adolescents in group 4 had vaginal deliveries[22]. This shows that, despite experiencing complications, the adolescents participating in this research, from group 4, had more vaginal deliveries.

According to Robson's Classification, the pregnant women in group 4 who undergo cesarean deliveries rarely reach 15%[21]. In this study, all of them had vaginal deliveries, so it is perceived that the rates in this group were as expected. Group 5 is made up of all the multiparous women with at least one previous cesarean delivery, with a single cephalic fetus, greater than or equal to 37 weeks[6]; all women in this group were subjected to cesarean sections. In Brazil, most of the pregnant adolescents in this group were also subjected to caesarean sections (75.60%). It is necessary to point out that, despite having a previous cesarean delivery, 23.41% of group 5 across Brazil had vaginal deliveries[19].

The recommendation for group 5 is from 50% to 60% of cesarean sections[22]. In this study, all of them had their delivery resolution through cesarean sections, thus falling short of expectations. All the pregnant women classified in group 6 are nulliparous, with a single fetus in breech presentation[6]. In this study, all the participants had cesarean deliveries. While in Brazil, 83.29% had cesarean deliveries, more than 15% had vaginal deliveries, despite their fetuses being in breech presentation[21]. The Recommendation Manual does not indicate criteria for interpreting the cesarean delivery data for group 6[22].

There were also pregnant women classified in group 8, all with multiple pregnancies including those with previous cesarean deliveries, and all were subjected to cesarean sections[6]. This finding is similar to the Brazilian data, which showed more than 70% of the adolescent pregnant women in group 8 undergoing cesarean deliveries. However, it is important to note that 26.22% had vaginal deliveries[21]. For group 8, the recommendation is usually 60% of cesarean sections[19]. In this study, all of them underwent cesarean deliveries, again showing a higher rate than expected.

As for group 10, they are all pregnant women with a single cephalic fetus < 37 weeks, including those with previous cesarean deliveries[6]. These had the highest number of cesarean sections (81.08%). This data showed that the pregnant women classified in group 10, who presented some complication and were seen at a high-risk maternity hospital, were more likely to undergo cesarean deliveries.

In Brazil, in 2017, pregnant adolescents in group 10 had more vaginal deliveries (68.29%) than cesarean sections. Group 10 usually has cesarean rates in the order of 60%[20]. In this research, the percentage of cesarean deliveries in this group was 20% higher than that recommended by the Classification, this points out that the clinical-obstetric complications that affect pregnant adolescents in this group led them to have more cesarean deliveries, which can bring about even more complications in future pregnancies. Consequently, the importance of understanding Robson's Groups and their greater chances of cesarean delivery among adolescents is evident. That is because the complications they present increase the risk of cesarean delivery in most groups of this classification[21].

Thus, understanding the importance of the professionals paying attention to the Robson's groups is fundamental. That is because knowing the classification of the Robson's group to which a pregnant or parturient woman belongs allows preventive measures to be taken to reduce the occurrence of unnecessary cesarean deliveries. This is so because the data presented express that the adolescents interviewed had more cesarean deliveries than the numbers for Brazil as a whole, and than the rates indicated as ideal by Robson's Classification. Thus, to increase the quality of obstetric care, it is indispensable to use this Classification. This system provides better knowledge of the adolescent's obstetric history, and thus offers a contribution to the quality of care provided[21,22].

CONCLUSION

When analyzing the results, it is observed that the most recurrent obstetric complications in pregnant adolescents according to Robson's Classification were those of the group of Hypertensive Syndromes, followed by premature labor and Gestational Trophoblastic Disease, and with regard to the outcome, it is noticed that, in groups 1, 2, 5, 8 and 10, for having suffered a clinical-obstetric complication, the number of cesarean deliveries increased. This demonstrates that the health care of adolescents must be intensified, since complications can increase the percentage of the number of cesarean sections recommended by the classification, putting at risk the obstetric future of these women, as well as the morbidity and mortality rates, providing an unfavorable outcomes for pregnant adolescents.

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