RELATIONSHIP BETWEEN MACROSOMIA AND GESTATIONAL DIABETES IN BIRTH CONDITIONS

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ABSTRACT

Introduction: Fetal macrosomia, defined as birth weight greater than 4000 grams, may be linked to several factors, such as weight gain during pregnancy and gestational diabetes mellitus (GDM). This condition predisposes to the occurrence of several health complications, both in the newborn and in the mother. This highlights the need for effective prenatal care, consisting of at least six consultations, to reduce health problems and the risk of complications during childbirth. **Objective:** To analyze the main complications during childbirth and measure the head circumference of babies with macrosomia, with or without gestational diabetes. **Methodology:** This is a descriptive and quantitative field study conducted through the analysis of medical records at the Children and Adolescents Outpatient Clinic (ACA), using the measurements used by the Ministry of Health. The data collected were compiled into an Excel table and analyzed. **Results:** A total of 520 medical records were analyzed, of which only 13 were included, and 2 showed the presence of GDM. Among the parameters considered, changes were observed in the medical records with GDM, with lower APGAR scores, higher head circumference z-scores, and the presence of complications during delivery. **Conclusion:** There is a relationship between macrosomia with the presence of DMG and changes in birth conditions. However, due to the small sample size, further research on the subject is necessary.

Keywords: fetal macrosomia; gestational diabetes; pregnant women; newborns.

INTRODUCTION

Fetal macrosomia is defined as birth weight greater than 4000 grams (ISLAM *et al.*, 2024). This condition can cause problems for both the newborn, such as fetal asphyxia, and for the pregnant woman, such as prolonged labor and unusual bleeding, in addition to a higher prevalence of cesarean sections (MENGESHA *et al.,* 2017).

As for anthropometric measurements, in Brazil, the growth curves recommended by the World Health Organization are used, which consider a head circumference between z +2 and -2 scores to be adequate (BRASIL, 2009). Differences in anthropometric measurements are observed in macrosomic infants when compared to infants with adequate weight (HYUN CHO *et al.,* 2021).

As a result, in Brazil, pregnant women are offered prenatal care consisting of at least six consultations, during which both fetal and maternal development are

monitored (BRAZIL, 2009). During these consultations, the mother's health parameters are observed, including weight and blood sugar, which, when high, are linked to gestational diabetes mellitus (GDM) and macrosomic babies (YANG *et al.,* 2024).

The aim is to analyze the main complications during childbirth and measure the head circumference of babies with macrosomia, whether associated with gestational diabetes or not.

METHOD

This is a descriptive and quantitative field study in which 520 medical records of children enrolled at the Children and Adolescent Outpatient Clinic (ACA) in Anápolis were analyzed between 2017 and 2022. Data collection was performed using an instrument that identified the birth weight, Apgar score, complications during delivery, height, and head circumference, using WHO measurements consolidated by the Ministry of Health.

Data collection was carried out in person at the clinic, with visits scheduled in advance, where a room was reserved for data analysis. In addition, in order to avoid any type of patient exposure, they were identified by numbers. The data collected was compiled in an Excel spreadsheet, where the number of prenatal consultations, complications during the delivery of macrosomic babies, Apgar scores, and head circumference were analyzed and compared. This study was approved by the Research Ethics Committee (CAAE 69901223 0 0000 5076).

RESULTS

A total of 520 medical records of children enrolled between 2017 and 2022 at the ACA in Anápolis were analyzed, of which 118 were excluded due to lack of data, resulting in a sample of 402 medical records. Among those selected, 3.24% (13) of those enrolled had a birth weight greater than 4000 grams and were included in the study, among which the mother had GDM in 2 cases.

Thus, among the 13 medical records included in the study, the APGAR score at 1 minute remained at adequate levels (between 8 and 10) in 85% (11), it was low in the remainder. However, it is possible to observe a greater tendency toward lower APGAR scores in medical records where the mother had GDM, with a score

classified as moderate (5), which did not improve when measured again at 5 minutes, unlike the other case without GDM, which had an APGAR score of 7 at 1 minute and 9 at 5 minutes.

In addition, another variable studied was head circumference, using the parameters of the World Health Organization. Thus, among the male patients included, only one had a z-score above +2, and this was a patient whose mother had GDM during pregnancy. As for females, only one patient had a z-score above +2.

Furthermore, fetal macrosomia can cause complications during childbirth, with pre-eclampsia and cyanosis being the most common, as observed in the study. Thus, in patients whose mothers had GDM, cyanosis caused by respiratory distress was observed.

Thus, when looking at the medical records identified as macrosomic with GDM individually, 50% (1) of them had changes in all variables.

CONCLUSION

Given the results obtained, there is a greater tendency for macrosomic newborns of pregnant women with GDM to have cases of cyanosis, reduced APGAR, and alterations in the z-score. Furthermore, even so, macrosomia without the presence of GDM is an important risk factor for alterations in these variables.

However, due to the small sample size of macrosomic newborns of mothers with GDM, further studies on these relationships are clearly needed.

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