NEONATAL HYPOGLYCEMIA. THE INCIDENCE OF THE RISK FACTORS IN SALVATOR VUIA OBSTETRICS-GYNECOLOGY HOSPITAL, ARAD

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INTRODUCTION

Neonatal hypoglycemia is one of the most common problems seen in neonatal intensive care units. It is accepted that persistent early and prolonged hypoglycemia results in brain damage and mental retardation.¹

Thus, neonatal intensive care therapy units must identify all neonates with risk of neonatal hypoglycemia, and to early initiate the treatment, because early recognition offers the best outcomes.

OBJECTIVE

The authors have proposed to perform a clinical-statistical study of newborns with neonatal hypoglycemia in their hospital. It is currently accepted that persistent early and prolonged hypoglycemia results in brain damage and mental retardation. Thus, the neonatal intensive care therapy units have to identify all neonates with risk of neonatal hypoglycemia, and to initiate treatment as early as possible, because early recognition leads to the best outcomes. The data analysis has been performed by examining 2687 clinical data of the newborns in the Clinical Obstetrical-Gynecology Hospital. The neonates with neonatal hypoglycemia, after the screening, were selected. The screening was performed with Dextrostix, from capillary blood at 30 min. - 1 hour after delivery in neonates with risk factors, and then at 1 hour, until the glucose level was normal. The incidence of neonatal hypoglycemia in our hospital is less than the literature data. In our study, the newborns born < 2500 g body weight represent the category with the greatest risk of hypoglycemia. Also, the neonates born by caesarian section had a greater risk of hypoglycemia. The neonatal pathology associated with neonatal hypoglycemia is, in order of frequency: prenatal hypoxia, hypothermia, respiratory distress, sepsis, neonatal shock, and polycythemia.

Key Words: neonatal hypoglycemia, incidence, risk factors

ORIGINAL ARTICLES

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hypoglycemia in their hospital, for a period of 9 months, to find:
- The incidence of neonatal hypoglycemia in this period of time;
- The risk factors for neonatal hypoglycemia and the incidence of hypoglycemia at risk category newborns.

The screening was performed with Dextrostix, from capillary blood at 30 min. - 1 hour after delivery, at neonates with risk factors.

MATERIAL AND METHOD

The data has performed by the analysis of 2687 clinical sheets of the newborns born in Clinical Obstetrical-Gynecology “Dr. Salvator Vuia” Arad Hospital. Then, neonates with neonatal hypoglycemia were selected, after the screening test.

The study was performed prospectively for a period of 9 months.

The screening was performed with Dextrostix, from capillary blood at 30 min. - 1 hour after delivery in neonates with risk factors, and then at every 1 hour until the glucose level was normal.

The statistical interpretation was made by calculating in Microsoft Office – Excel the average value, standard deviation, F-test (to see if the variances of two or more value sets are significantly different or not).

The Gaussian distribution of neonate’s gestational age shows us:
- 99.7% from subjects were between Average -3SD and Average +3SD;
- 95% between Average -2SD and Average +2SD;
- 68% between Average -SD and Average +SD.

This means that the group of subjects was representative from the statistical point of view.

RESULTS

- From the 2687 newborns, 326 with hypoglycemia risk were selected;
- 124 newborns presented hypoglycemia, and received treatment;
- 202 newborns presented neonatal pathology, placed in neonatal intensive care unit, and didn't need metabolic correction;
- The risk of neonatal hypoglycemia appeared at 12.13% from all the neonates in that period of time;
- From 2687 neonates, 4.61% presented hypoglycemia;
- The incidence of neonatal hypoglycemia in universal literature is 20.6%.

- In our hospital, the neonatal hypoglycemia incidence is inferior to the universal data;

From all neonates with neonatal hypoglycemia, the neonates at term represent 45.53% the preterm infants represent 52.84%, and the post term infants represent 1.63%. The preterm infants are at greater risk of neonatal hypoglycemia in our study.

The literature data show that the incidence of neonatal hypoglycemia at preterm infants is 55%. Our data are similar to the literature data.

The mechanism of neonatal hypoglycemia in preterm infants is inadequate production of glucose, because of the limited deposits of glycogen.
Caesarian section and abnormal presentation are factors that can affect the incidence of neonatal hypoglycemia.

In the group of neonates with neonatal hypoglycemia, those born by caesarean section were selected. They were at 37-38 weeks of gestational age. (Fig. 9,10)
The influence of Apgar score: Apgar score <7 at 1 minute, fetal distress indicator, shows the increase of incidence of neonatal hypoglycemia. (Fig. 11)

The influence of maternal pathology

The mechanism of neonatal hypoglycemia in neonates born from mothers with diabetes mellitus is fetal or neonatal hyperinsulinism. These babies are generally large for gestational age, because of the anabolisant effect of insulin.³

The premature rupture of membranes and urinary tract infections in mothers are risk factors for neonatal hypoglycemia. Mother's arterial hypertension is a risk factor for small for gestational age neonates.⁶

The diagram reveals the relation between mother pathology and neonatal hypoglycemia. (Fig. 13)

CONCLUSIONS

- The incidence of neonatal hypoglycemia in Arad Maternity (4.61%) is inferior to the universal data;
- The results of our study suggest that newborns with low body weight are at the greater risk of hypoglycemia;
- The newborns born by caesarian section, 37/38 gestational age, are at risk of hypoglycemia;
- From all the neonates placed in the NICU, only a part presented hypoglycemia, so screening is necessary;
- The pathology associated with neonatal hypoglycemia, in order of frequency is: perinatal hypoxia, hypothermia, respiratory distress, infection, shock, polycythemia.

REFERENCES