

Prevalence and Screening of Low Birth Weight Babies for Hypoglycemia

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ABSTRACT

Aim: To determine the prevalence of hypoglycemia in low birth weight babies. To detect onset of hypoglycemia in first 24 hours

Study Design: An observational study.

Place and Duration of Study: Neonatology Department, Fatima Memorial Hospital, Lahore, Pakistan, from January 2016 to August 2016.

Methods: From January 2016 to August 2016 all low birth weight babies delivered are shifted to neonatal nursery for observation and screening for hypoglycemia are included in the study. Screening was done 1 hourly for 4 hours and 4 hourly for next 20 hours by Gluco sticks and sample was taken from heel prick. Blood glucose levels are monitored for first 24 hours of life.

Results: Total 300 babies, were included in this study out of which 15 babies developed hypoglycemia so 5% prevalence of hypoglycemia was found. 80% of the babies developed asymptomatic hypoglycemia and 20% developed Symptomatic. Commonest symptoms for hypoglycemia are reluctance to feed. 80% of the babies developed hypoglycemia within first 4 hours of life however 20% babies develop hypoglycemia up to 16 hs of life.

Conclusion: 5% of babies developed hypoglycemia and onset of hypoglycemia occurs mainly in first 4 hours of life. Majority of the babies developed asymptomatic hypoglycemia however 20% babies develop symptomatic hypoglycemia. We recommend that all the low birth weight babies must be screened for hypoglycemia in first 4 hours in order to prevent complications and poor outcome due to hypoglycemia. Screening of babies after 4 hours needs more studies.

Keywords: Hypoglycemia, Low birth weight, Prevalence.

INTRODUCTION

Clinically significant neonatal hypoglycemia is defined as a plasma glucose level of <40mg/dL¹. Transitional hypoglycemia is common in healthy newborns immediately after birth. The levels improve and reach to normal in the first few hours after birth². Studies have demonstrated harm from these few hours of asymptomatic hypoglycemia during this period of physiologic adaptation³.

Babies less than 2500gm are low birth weight baby. Low birth weight babies have increased risk of developing hypoglycemia^{4,5,6,7}.

The estimated incidence of symptomatic hypoglycemia in neonates was found to be 1-3 in 1,000 live births⁸. Whereas in a prospective study conducted in Iran during January 2009-2010, the prevalence of hypoglycemia was found to be 0.4%⁹. No reliable data available from local studies.

The objective of this study was to determine the prevalence of neonatal hypoglycemia during the first 24 hours and to detect the time of onset of hypoglycemia in low birth weight babies.

PATIENTS AND METHODS

This was an observational study conducted in the nursery of Fatima Memorial Hospital, Lahore from January 2016 to August 2016. All low birth weight babies (<2,500gm) babies born in the hospital during this time were included,

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Blood glucose levels were monitored 1 hourly for first 4 hours and then 4 hourly next 20 hours by Gluco sticks and sample was taken from heel prick. All the data were recorded and the prevalence of asymptomatic and symptomatic hypoglycemia was calculated.

RESULTS

A total of 300 patients were included in this study. Of these, 158 (52.66%) were males and 142 (47.33%) were females. Hypoglycemia was recorded in a total of 15 patients out of 300 (5%) (Table 1)

Table 1: Prevalence of hypoglycemia in low birth weight babies

| Babies with hypoglycemia | n | Prevalence of hypoglycemia |
|--------------------------|-----|----------------------------|
| 15 | 300 | 5% |

Table 2: Distribution of babies by birth weight

| Weight | n | Total no of babies | %age |
|---------------|-----|--------------------|-------|
| 1001-1500gm | 241 | 300 | 80.34 |
| 1501 – 2500gm | 59 | 300 | 19.66 |

Table 3: Low birth weight babies according to gestational age

| Gestational Age | No of babies | Total No of babies | Babies with hypoglycemia |
|-----------------|--------------|--------------------|--------------------------|
| 28 - 31 weeks | 4 | 300 | 4 |
| 32- 36 weeks | 167 | 300 | 10 |
| >36 weeks | 129 | 300 | 1 |

Table 4: Babies with Symptomatic and Asymptomatic Hypoglycemia

| Hypoglycemia | No of babies | Total No of babies | %age |
|--------------|--------------|--------------------|------|
| Asymptomatic | 12 | 15 | 80 |
| Symptomatic | 3 | 15 | 20 |

Table 5: Hypoglycemia according to gender

| Gender of babies | | No of babies with hypoglycemia | Total No of babies with hypoglycemia | %age |
|------------------|-----|--------------------------------|--------------------------------------|------|
| Male | 172 | 11 | 15 | 73.3 |
| Female | 128 | 4 | 15 | 26.7 |

80% of the babies developed asymptomatic hypoglycemia and 20% developed symptomatic hypoglycemia was observed in 3 (Table 4).

DISCUSSION

Low birth weight babies are prone to developed hypoglycemia^{10,11}; low birth weight babies may include prematures, intra uterine growth retardation. (12)(13) (14) (15)These are the risk factors to develop hypoglycemia. (16)(17)Hypoglycemia in low birth weight may cause severe morbidity if not detected and treated early (18) (19). In the study prevalence of hypoglycemia was found 5%. Similar prevalence reported in India however western studies show less prevalence. Onset of hypoglycemia occurs mainly in first four hours after delivery however 20% of the babies may develop hypoglycemia up to 16 hours of age. Reluctance of feeding is only symptom we notice in our study screening method and that reported. (20) We used is comprehensive and picked all cases of hypoglycemia however in the resource constraint area we can monitor at least for first four hours of lifefor hypoglycemia. In this way we can reduce hospitalization, parental anxiety, separation of mother and baby and economic burden on family.

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