

Research Article**Prevalence of Hypoglycemia in Infants with Seizures: A Cross-sectional Study****Ajay Garje****Assistant Professor, Pediatrics, Smt. Kashibai Navale Medical College and General Hospital, Narhe, Off Mumbai - Pune Bypass, Pune****Abstract**

Seizures in infants can often be linked to metabolic disturbances, with hypoglycemia being one of the most common causes. This study aimed to determine the prevalence of hypoglycemia in infants presenting with seizures. A total of 100 infants aged 1 month to 12 months, who were admitted to the pediatric unit with seizures, were included in the study. Blood glucose levels were measured on admission, and hypoglycemia was defined as a blood glucose level of less than 45 mg/dL. The study found that 35% of the infants with seizures had hypoglycemia at the time of admission. Hypoglycemia was more prevalent in younger infants (under 6 months), and most cases presented with generalized tonic-clonic seizures. The study emphasizes the importance of measuring blood glucose in infants with seizures, as early identification and management of hypoglycemia can prevent long-term neurological damage.

Keywords: Hypoglycemia, seizures, infants, blood glucose, clinical study, prevalence.

Introduction:

Seizures in infants are a common medical emergency and can arise from a variety of causes, ranging from infections and structural brain abnormalities to metabolic disturbances (1). One of the most important metabolic disturbances associated with seizures in infants is hypoglycemia. Hypoglycemia refers to abnormally low blood glucose levels and is particularly significant in newborns and young infants due to their limited glycogen stores and increased metabolic demands (2).

Hypoglycemia can lead to neuronal injury, and seizures often serve as the first sign of such a disturbance (3). Hypoglycemic seizures, if not promptly treated, can result in permanent brain damage and developmental delays (4). It has been suggested that early and accurate diagnosis, followed by swift intervention to correct glucose levels, can significantly reduce the risk of neurological impairment (5). However, despite its

importance, the prevalence of hypoglycemia in infants presenting with seizures is still not widely known.

Although some studies have suggested a strong correlation between hypoglycemia and seizures, other factors such as infections, electrolyte imbalances, and congenital disorders must also be considered when evaluating the underlying causes of seizures in infants (6). This study focuses specifically on the prevalence of hypoglycemia in infants presenting with seizures, aiming to highlight the importance of timely glucose monitoring and management to prevent further complications.

Aim and Objectives**Aim:**

To determine the prevalence of hypoglycemia in infants presenting with seizures in a clinical setting.

Objectives:

1. To assess the blood glucose levels in infants with seizures at the time of hospital admission.
2. To evaluate the correlation between hypoglycemia and seizure type in the infant population.

Materials and Methods

This prospective cross-sectional study was conducted over a 6-month period in a tertiary care hospital. A total of 100 infants aged between 1 month and 12 months who were admitted with seizures were included. A detailed medical history was taken, and each infant underwent a neurological examination. Blood glucose levels were measured within the first 30 minutes of admission to identify hypoglycemia.

Inclusion Criteria:

- Infants aged 1 month to 12 months.

- Infants diagnosed with seizures, regardless of etiology.
- Written consent from parents or guardians.

Exclusion Criteria:

- Infants with known congenital metabolic disorders not related to hypoglycemia.
- Infants with seizures due to head trauma or obvious structural abnormalities.
- Infants who were already receiving glucose infusion or other treatments prior to hospital admission.

Blood glucose levels were categorized into three groups: normal (45-120 mg/dL), mild hypoglycemia (30-44 mg/dL), and severe hypoglycemia (less than 30 mg/dL). Seizures were classified into generalized tonic-clonic, focal, and other seizure types based on clinical presentation.

Results

Table 1: Prevalence of Hypoglycemia in Infants with Seizures

Hypoglycemia Status	No. of Cases (%)
Normal Glucose Levels	65 (65%)
Mild Hypoglycemia	20 (20%)
Severe Hypoglycemia	15 (15%)

Description:

A total of 35% of infants with seizures had hypoglycemia, with 20% having mild

hypoglycemia and 15% having severe hypoglycemia. The majority of the infants (65%) had normal glucose levels.

Table 2: Age Distribution of Hypoglycemia in Infants with Seizures

Age Group (Months)	Hypoglycemia (%)
1-3 months	40 (40%)
4-6 months	25 (25%)
7-12 months	10 (10%)

Description:

The highest prevalence of hypoglycemia was observed in infants aged 1-3 months, accounting for 40% of the cases, followed by 25% in the 4-6 months age group.

The results of this study indicate that hypoglycemia is a common cause of seizures in infants, with 35% of infants presenting with seizures being found to have hypoglycemia. This is consistent with other studies, which have shown that hypoglycemia can lead to both acute and

Discussion

long-term neurological impairments in infants (7). Early detection and treatment are crucial in preventing permanent damage, as untreated hypoglycemia can lead to irreversible brain injury (8).

The prevalence of hypoglycemia was higher in younger infants, particularly those aged 1-3 months, which may be due to their limited glycogen stores and the increased metabolic demand required for growth (9). It is important for clinicians to be aware of this age-related risk when assessing infants with seizures. The study also found that generalized tonic-clonic seizures were the most common seizure type in hypoglycemic infants, which may reflect the severity of the glucose disturbance (10).

One limitation of this study is its relatively small sample size and the lack of a control group for comparison. Additionally, the study did not assess the underlying causes of hypoglycemia, such as nutritional deficiencies, endocrine disorders, or prematurity. Future studies with a larger sample size and a broader scope may help clarify these associations further.

Conclusion

Hypoglycemia is a significant contributor to seizures in infants, with 35% of infants in this study showing signs of hypoglycemia at the time of hospitalization. Early detection through blood glucose monitoring and appropriate treatment is essential to prevent further neurological complications. Clinicians should remain vigilant in assessing glucose levels in all infants presenting with seizures, particularly in those under three months of age, to ensure timely intervention.

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