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Incidence of Hypoglycaemia in SGA Neonates in First 48 hours of Life

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Abstract

Objectives: To detect the incidence of hypoglycaemia in Small for gestateonal age (SGA) neonates. *Design:* Hospital based prospective study in a maternitycentre in south India. *Inclusion criteria:* all inborn SGA neonates without major congenital anomalies. *Sampling:* three hundred SGA neonates were enrolled inthe study from 1 August 2008 to 1 November 2009. *Intervention/Measurement:* Random blood glucose levelswere estimated by the standard glucose oxidase peroxidase method at 1,6,12,24 and 48 hours of life during the first 2 days of life. *Results:* The incidence of neonatal hypoglycaemia in SGA newborns in thepre-sent study group was 28%. Out of 28%,20% were asylumptomatic.during 48 hours of monitoring 70% of hypoglycaemia events occurred in first 24 hours. *Conclusions:* hypoglycemia incidence is very high in SGA neonates particularly asymptomatic type. So needs serial monitoring in first 48 hours.

Keywords: Neonate; Hypoglycemia; SGA; Asymptomatic.

Introduction

Neonatal hypoglycaemia is a preventable cause of neurological sequelae. Neonatal hypoglycemia is one of the most frequently encountered metabolic abnormalities in newborn infants. Its importance has been greatly emphasized especially inrelation to acute neurological dysfunction as well as long term neurodevelopment impairment [1-4]. The overall incidence has been estimated at 1.3-5 per 1,000 live births, but it is higher in at-risk populations [5]. But overall incidence in high risk neonates which includes SGA neonates is upto 30% [6].

Materials and methods

The present study was conducted at the labour room, postnatal wards and new born nursery of baby memorial hospital. Sample collection commenced on 1 August 2008, after getting approval from the hospital ethical committee. All newborns fulfilling inclusion criteria (birth weight <10th centile) were enrolled. By 1 November 2009, a total of 300 neonates were enrolled. Neonates delivered outside the baby memorial hospital and with major congenital anonalies were excluded from the study.

For every baby in the sample population, relevant antenatal, natal and postnatal details were recorded (Table 1). Serial monitoring of blood glueose done at 1,2,4,6,12,24,48 hours of life. Blood glucose estimation was done by the standard glucose oxidase–peroxidase method. All babies detected to have hypoglycaemia (blood glucose values less than 40mg/dl) were promptly referred to the newborn nursery where they were treated according to the standard nursery protocol.

Results

Out of 300 babies screened, 84 were found to have hypoglycaemia. Thus the incidence of neonatal hypoglycaemia was 28%. A majority of the

Table 1: Clinical characteristics of mothers and infants (n =300)

No	Clinical characterestics	Number of cases	Hypoglycemia	P value
1	Gestational age			
	Preterm	44	30	0.0
	Term	256	54	
2	Parity			
	Primigravida	180	56	0.14
	Multigravida	110	28	
3	Mode of delivery			
	Normal vaginal	100	30	0.58
	Caesarian section	200	54	
4	Time of first feed			
	< 2 hours	142	24	0.000049
	> 2 hours	158	60	
5	Cold stress or hypothermia	46	28	0.0

hypoglycemic SGA neonates were asymptomatic (71.4%). Of the 84 cases of hypoglycaemi, 59 cases occurred in first 24 hours (70%).

Discussion

Of the total sample population of 300, 84 babies had hypoglycaemia during the first 48 h of life. The incidence of neonatal hypoglycaemia was 28% during the study period, consistent with those of J Ho et al.[7] who reported incidence of 34.2% and Singh et al who reported incidence to be 23.8% [8].

A majority of the neonates (70%) developed hypoglycaemia during the first day of life similar to studies of Singh et al., Lucas A et al and Maayan-Metzger A et al. [8,9,10] During the first several hours of life there is a rapid fall in this level before compensatory mechanisms start. After reaching a nadir during the third hour of life, blood glucose levels normally stabilise at values exceeding 40mg/dl. However, these homeostatic processes may be disturbed in SGA neonates [11].

Analysis of the clinical data on hypoglycaemic neonates showed a clear preponderance of asymptomatic cases. This observation stresses the importance of prompt screening of the high risk neonates, irrespective of the symptoms.

Again in SGA neonates, preterm, cold stress and gap between delivery and first feeds of >2 hours were addictionally significant risk factors as like in full neonatal studies of Sasidharan CK et al. and Singh et al. [12,8].

Conclusions

Incidence of hypoglycaemia in SGA neonates is alarmingly high of 28% as like similar studies and also asymptomatic variety is predominant particlearly in first 24 hours of life. So we are strongly recommending to screen for hypoglycaemia in first 48 hours of life irrespective of symptoms and also to give feeds within 2 hours of birth to prevent hypogeaycemia.

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