GROWTH OF SMALL FOR GESTATIONAL AGE AND APPROPRIATE FOR GESTATIONAL AGE VERY LOW BIRTH WEIGHT INFANTS AT 2 YEARS

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BACKGROUND

The proportion of small for gestational age (SGA) infants is high in developing countries and they have poor catch up growth during infancy

AIMS

To compare the growth (weight, height and head circumference) of

- Small for gestational age (SGA) infants with appropriate for gestational age (AGA) in very low birth weight (VLBW) infants (< 1250 grams) from birth till 2 years corrected age (CA)

METHODS

- Prospective study, conducted in a level III neonatal unit over 3 years (2012-2015)
- All ≤ 1250 grams, discharged alive, assessed at
 - at discharge
 - at CA 40 weeks
 - CA 3, 6, 9, 12 months
 - CA 2 years

For weight, height and head circumference (HC) including Z scores

RESULTS

- Of the 341 enrolled, 164 (48%) were discharged alive of which 78 (48%) were AGA and 86 were (52%) SGA
- Mean ($\pm$ SD) birth weight was similar in 2 groups though gestation was significantly higher in SGA infants (Table 1)
- All 3 growth parameters were significantly lower in SGA infants as compared to AGA infants. (Table 1 and 2) at discharge, at corrected age 40 weeks, 1 and 2 years
- Proportion of infants at < -3 SD for weight, height and Head circumference at corrected age 40 weeks, 1 year and 2 years remained significantly lower in SGA infants as compared to AGA infants (fig 1)
- Mean WHO z scores for all 3 parameters showed an improving trend at the same rate ($p = NS$) from 3 months to 2 years in both the groups (fig 2, 3, 4)

Table I: Demographic characteristics and growth at discharge, CA 40 weeks, 1 year and 2 years

	AGA (n=78)	SGA (n=86)	p
Birth Wt (grams)	1070 $\pm$ 126	1034 $\pm$ 162	.109
Gestational age (weeks)	29.1 $\pm$ 2.2	32 $\pm$ 2.6	.000
PCA at discharge (weeks)	35.5 $\pm$ 2.6	37 $\pm$ 2.5	.000
Weight at discharge (grams)	1596 $\pm$ 337	1405 $\pm$ 176	.000
At 40 weeks	n=57	N=74	
Weight at 40 weeks PCA (kg)	2.2 $\pm$.42	1.7 $\pm$.30	.000
Height at 40 weeks PCA (cm)	45.3 $\pm$ 2.8	43 $\pm$ 2.5	.000
Head circumference (HC) at 40 weeks PCA (cm)	32.6 $\pm$ 1.6	31.3 $\pm$ 1.4	.000

Values are expressed as mean $\pm$ SD, $P < 0.05$ significant
PCA – Post conceptional age

Table 2: Growth parameters at 1 year and 2 years corrected age

At 1 year	AGA n=56	SGA n=66	p-value
Weight (kg)	7.8 $\pm$ 0.98	7.1 $\pm$ 1.1	.002
Height (cm)	71 $\pm$ 2.4	68.9 $\pm$ 3.2	.000
Head circumference (HC) (cm)	44.4 $\pm$ 1.9	43 $\pm$ 1.8	.000
At 2 yrs	n=52	n=70	
Weight (kg)	9.9 $\pm$ 1.1	9.2 $\pm$ 1.4	.007
Height (cm)	82 $\pm$ 3.2	80 $\pm$ 3.6	.003
Head circumference (HC) (cm)	46 $\pm$ 1.7	45 $\pm$ 1.7	.000

$P < 0.05$ significant

Values are expressed as mean $\pm$ SD

Figure 1
Proportion of infants at < -3 SD for weight, height and Head circumference at corrected age 40 weeks, 1 year and 2 years.

Figure 2
Z scores for weight from 3 months to 2 years

Figure 3
Z scores for height from 3 months to 2 years

Figure 4
Z scores for head circumference (HC) from 3 months to 2 years

CONCLUSION

Growth remained significantly lower in SGA infants as compared to AGA infants from discharge till 2 years corrected age who were ≤ 1250 grams at birth with significant proportion remaining at < -3 SD in SGA category

KEY WORDS

Growth, SGA, AGA, WHO Z score

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