

epidemiological factors are important as they could have modified the *in-utero* growth and hence the resultant postnatal growth assessment.

Secondly, the authors have not reported the type of SGA in the study subjects (whether symmetric or asymmetric) as the postnatal growth pattern would have been different in each of this group. Moreover, it's unclear how gestation was assessed in subjects where the estimates of last menstrual period were unreliable and early ultrasonography was not available. Situations like these are very common in our country and this needs clarification.

Thirdly, even though the authors have mentioned that calories were targeted at 80 kcal/100mL with an additional protein intake of 0.6 g/kg/day, they have not mentioned in how many they were able to achieve this target; how long it took for them to achieve full enteral feeds; and what were their target total calorie and protein requirements. Moreover, information regarding total parenteral nutrition (TPN) like how many received TPN and growth patterns in those infants who received TPN before they were transitioned to enteral feeds needs more elaboration.

Fourthly, only 9 out of the 97 (9%) were extremely low birth weight (ELBW) infants. Hence, a growth trajectory for ELBW infants with such small number is prone to be erroneous. The authors have observed a decrease of 1Z score in all parameters from birth to discharge. Surprisingly, this decrease has been observed with head growth too which may not be really good information. However, this reinforces the need for an aggressive postnatal nutrition policy which includes utilization of TPN to tide over the transition period from intravenous fluids to enteral feeds [2].

Finally, the authors have not mentioned how many subjects had major morbidities like necrotizing enterocolitis and bronchopulmonary dysplasia, as these morbidities can significantly compromise the postnatal growth [3].

Venkateshan Sundaram and Vandana Negi
Department of Pediatrics,
Postgraduate Institute of Medical Education and
Research, Chandigarh; and Army Hospital
(Research & Referral), New Delhi, India.
venkatpgi@gmail.com

REFERENCES

1. Saluja S, Modi M, Kaur A, Batra A, Soni A, Garg P, *et al.* Growth of very low birth-weight Indian infants during hospital stay. *Indian Pediatr.* 2010;47:851-6.

2. Embleton NE, Pang N, Cooke RJ. Postnatal malnutrition and growth retardation: An inevitable consequence of current recommendations in preterm infants? *Pediatrics.* 2001;107:270-3.
3. Ehrenkranz RA, Younes N, Lemons JA, Fanaroff AA, Donovan EF, Wright LL. Longitudinal growth of hospitalized very low birth weight infants. *Pediatrics.* 1999;104: 280-9.

REPLY

We appreciate the readers' keen interest in our article and their critical comments. It has been rightly pointed out that epidemiological and maternal characteristics have an impact on fetal and post natal growth. However, our primary objective was to evaluate postnatal growth pattern of VLBW infants, rather than impact of demographic predictors on their growth *per se*. Further, relatively small sample size of our study precluded statistical analysis of these predictors on postnatal growth with adequate power.

Even though we did not report type of SGA in our manuscript, majority of SGA infants in our cohort were asymmetric and in most of them the reason for growth restriction was gestational hypertension or placental dysfunction. More than half (53.6%) of pregnancies with VLBW infants were associated with hypertension. Assessment of gestational age was done (in that order) by 1st trimester USG, LMP, if reliable, or by new Ballard score. In the settings where this study was performed, majority of pregnancies are booked and more than 80% pregnancy had first trimester ultrasound available for gestational age assessment.

We followed an aggressive policy on enteral feeds. Infants were initiated on enteral feeds at a mean age of 2.81 \pm 2.33 days and time taken to reach full feeds was 10.99 \pm 7.67 days. Infants who were not likely to be on full enteral feeds or developed feed intolerance were initiated on parenteral nutrition (PN) on first day with 1g/kg of amino acids and lipids and gradually increased to a total of 3g/kg/day. Forty four (45.4%) of infants in our cohort received PN during NICU stay and the target for calorie intake were 90 cal/kg/d on PN and 120-130 cal/kg/d on enteral nutrition. We achieved calorie density of enteral formula to 80 cal/100 mL by adding human milk fortifier once infant reached 100mL/kg/day. If human milk was not available, preterm/LBW milk formula with a calorie and protein content of 80 cal/100 mL and 1.83g/100mL, respectively.

As the readers have commented, growth pattern of ELBW infants in our study might not be truly representative due to small number of infants and a large data is needed to demonstrate growth pattern of this

subgroup with reasonable confidence. Only 3 of the survivors in this cohort had BPD and one developed NEC. Differential analysis of growth pattern in these infants could not have been inferential due to very small number. We observed a lag in head growth despite management based on current nutrition guidelines and aggressive PN. Similar lag in head growth in VLBW infants during hospital stay has been reported in other studies [1,2]. This fact emphasizes the need for finding predictors of poor head growth and optimizing postnatal care of VLBW infants.

**Satish Saluja and
Manoj Modi**
ssaluja@vsnl.com

REFERENCE

1. Hack M, Schluchter M, Cartar L, Rahman M, Cuttler L, Borawski E. Growth of very low birth weight infants to age 20 years. *Pediatrics*. 2003;112:30-8.
2. Were FN, Bwibo NO. Early growth of very low birth weight infants. *East Afr Med J*. 2006;83:84-9.

Sildenafil, Neonates and Regulation

I read with interest the perspective on the emerging role of Sildenafil in neonatology [1]. I was disappointed with the authors' statement, "We could not find any Indian data or case report on use of sildenafil in PPHN". I have published my use of sildenafil in two term neonates with PPHN which was missed by authors [2]. I also feel disappointed by the lack of studies emerging from Indian subcontinent on use of sildenafil in neonates (especially with PPHN) as my belief is that developing countries are in a unique situation to conduct such research [3]. In developed countries, ethical dilemmas will arise as inhaled nitric oxide has become standard treatment for PPHN in term neonates.

I completely agree with Malik and Nagpal that all experiences with sildenafil in neonates must continue to be monitored and reported. However, it reads like a wishful superficial statement with no suggestions of who is going to monitor and report and how. In India, almost three-quarters of pediatricians are in private practice and it is very likely that this cohort is more likely to use this drug as an off label use. Doctors using it will be highly uncomfortable reporting it if they meet out with adverse events or mortality. This would be because of lack of access to Institutional ethics committees or ethicists for consultations, reliance on their conscience and potential for causing controversy. The journals will be critical and hesitant to publish due to lack of evidence and ethical concerns.

Sildenafil is a Schedule 4 drug in Australia meaning it is a prescription only drug. However, for indications other than where it is approved, hospitals seek approval of drug committees comprising experts in field and consultation with ethicists if such dilemmas arise. For medications not available in Australia, provisions exist using Special

Access Scheme of Therapeutic Good Administration, for procuring and using off-label drugs [4]. This results in monitoring of the drug and outcomes.

Off label use of drugs including sildenafil is an unfortunate reality in neonatology [5]. Mechanisms and regulatory bodies on regional basis for monitoring this needs to be developed to ensure safe neonates in myriad neonatal units mushrooming in India, especially in the private sector.

Pankaj Garg

31/59-61, Good Street, Westmead, NSW 2145,
Australia. pankajg@chw.edu.au

REFERENCES

1. Malik M, Nagpal R. Emerging role of sildenafil in neonatology. *Indian Pediatr*. 2011;48:11-3.
2. Garg P. Oral sildenafil for PPHN in neonates: selection of patients remains a dilemma? *J Coll Physicians Surg Pak*. 2008;18:132-3.
3. Juliana AE, Abbad FC. Severe persistent PPHN of the newborn in a setting where limited resources exclude the use of inhaled nitric oxide: successful treatment with sildenafil. *Eur J Pediatr*. 2005;164:626-9.
4. Therapeutic Good Administration. Special Access Scheme. Available from: <http://www.tga.gov.au/hp/sas.htm>. Accessed January 7, 2011.
5. Dessi A, Salemi C, Fanos V, Cuzzolin L. Drug treatments in a neonatal setting: focus on the off-label use in the first months of life. *Pharm World Sci*. 2010;32:120-4.

REPLY

We would like to thank the author for the interest shown in our article. We were able to access the article mentioned but as no abstract was available, neither was there a link to the full text of the article; hence, the inadvertent error.

The aim of writing this article was to acknowledge the emerging role of sildenafil in neonatology and to