

and the presence of PDA is associated with significant morbidity and mortality in infants of gestational age <25 weeks [3]. However, it is not clear from the literature where to draw the demarcation line as far as the birth weight is concerned. An unpublished audit done in our department revealed that birth weight was a better predictor than gestational age with regard to PDA-related morbidities. We found that morbidities such as massive pulmonary hemorrhage and severe intra-ventricular hemorrhage were significantly higher in babies with birth weight less than 800g with untreated PDA, regardless of gestational age. Hypothermia, peri-natal asphyxia, lack of antenatal steroids and intrauterine growth retardation were additional risk factors.

If treatment for the PDA is based on clinical judgment alone, we might end up in over treating it, and exposing the neonates to treatment - related morbidities. Hence we

recommend that the treatment strategies should be based on birth weight as well, in addition to hemodynamic significance of PDA and need for assisted ventilation.

VICTOR SAMUEL RAJADURAI
victor.samuel@kkh.com.sg

REFERENCES

1. Nemerofsky SL, Parravicini E, Bateman D, Kleinman C, Polin RA, Lorenz JM. The ductus arteriosus rarely requires treatment in infants >1000 grams. *Am J Perinatol.* 2008;25:661-6.
2. Clyman R, Narayanan M. Patent ductus arteriosus: a physiologic basis for current treatment practices. *In: Current Topics in Neonatology.* Philadelphia:WB Saunders. 2007. p. 71-97.
3. Tazuin L, Joubert C, Noel AC, Bouissou A, Moulies ME. Effect of persistent patent ductus arteriosus on mortality and morbidity in very low-birthweight infants. *Acta Paediatr.* 2012;101:419-23.

Management of Children with Severe Acute Malnutrition

We read the two recent publications [1,2] related to Severe acute malnutrition (SAM), and wish to highlight certain issues. The prevalence of bilateral pitting edema was found to be 8.1% [1] and 27% [2]. These proportions are very high. Recent National Nutrition Monitoring Survey Report [3] has reported the time trends in prevalence of Kwashiorkor as 1.2% (1975-79), 0.2% (1988-1990), 0.8% (1996-1997) and 0% (2011-2012) [3]. The reasons for high prevalence of bilateral pitting edema found in Uttar Pradesh and Madhya Pradesh need to be elaborated.

The study that was conducted in twelve Nutrition Rehabilitation Centers (NRCs) in Uttar Pradesh [1] documented high defaulter rates (49% and 46%) amongst SAM children with complications admitted to NRCs and uncomplicated SAM children, respectively. With such a high defaulter rate, the results documenting mortality of 1.2% amongst SAM children admitted to NRCs are not valid. What were the reasons for high defaulter rate amongst complicated and uncomplicated SAM children? This information could help immensely in improving the functioning of NRCs in other states for efficient management of children with SAM.

The discharge and recovery rates were 17.8% (complicated SAM) and 28.7% (uncomplicated SAM), which reflect that inadequate services were provided to SAM children who were admitted to NRCs in Uttar Pradesh.

UMESH KAPIL AND N SAREEN

Department of Human Nutrition, AIIMS, New Delhi, India.
umeshkapil@gmail.com

REFERENCES

1. Singh K, Badgaiyan N, Ranjan A, Dixit HO, Kaushik A, Kushwaha KP, *et al.* Management of children with severe acute malnutrition: Experience of nutrition rehabilitation centres in Uttar Pradesh, India. *Indian Paediatr.* 2014; 51:21-5.
2. Kumar R, Singh J Joshi K, Singh HP, Bijesh S. Co-morbidities in hospitalized children with severe acute malnutrition. *Indian Paediatr.* 2014;51:125-7.
3. National Nutrition Monitoring Bureau. NIN Hyderabad Press, NNMB Technical Report No. 26; 2012.

AUTHOR'S REPLY

The 8.1% prevalence of bilateral pitting edema among children with SAM admitted in the 12 NRCs in Uttar Pradesh should not be confused with the prevalence of Kwashiorkor as found in the nutrition surveys in the community. The proportion of patients admitted in a health facility with a certain health condition may not correlate with its prevalence in the community. It would also be important to note that the frontline workers during their training on identification and referral of children with

SAM are specifically trained on the need to identify and refer children with bilateral pitting edema to the NRCs as these children are at a much high risk of death. These frontline workers make special effort in convincing the family of children with bilateral pitting edema for admission and treatment in NRCs.

The paper mentions that of the total program exits, 1.2% children died. The focus of this paper was on the outcomes of children with SAM while in the program. The outcome of children who defaulted is beyond the scope of the paper. The paper also acknowledges and highlights the high default rates and has recommended further

investigation for corrective action.

NRCs are meant for the stabilization, transition and the initial part of the rehabilitation phase of management of children with SAM with medical complications; the major part of the rehabilitation (4-6 weeks) needs to be undertaken in the community using therapeutic foods. A child with SAM needs to be treated with therapeutic food for 6-8 weeks for full recovery; low recovery rates seen at NRC cannot be taken as a failure or inadequacy of NRCs.

KARANVEER SINGH
ksingh@unicef.org

Artemisinin-based Combination Therapy in Malaria Non-endemic Areas

The National Vector-Borne Disease Control Programme (NVBDCP), the National Antimalarial Programme (NAMP) and the WHO Guidelines 2010 recommend the use of artemisinin combination therapy (ACT) for the treatment of uncomplicated and complicated malaria due to *P. falciparum*, and in chloroquine-resistant malaria due to *P. vivax* [1,2]. Having stated this, the pertinent question arises as to why the WHO Guidelines recommend the use of ACT even in malaria non-endemic zones like Pondicherry where drug resistance has not been documented, and especially when there is good response to other antimalarials like chloroquine, quinine, sulfadoxine-pyrimethamine and primaquine. Recent studies indicate the evidence of resistance even to artemisinin combination therapy [3]. Is there not a need to take necessary steps before the ACT drug resistance becomes a common phenomenon? Is it not logical to reassess the use of ACT, and use it only in cases of chloroquine resistance malaria, in severe complicated malaria, in cases of heavy parasitemia, malaria in endemic areas, and in cases where there is poor response to non- ACT antimalarials, rather than in all cases? Should ACT not be the preserved drug used in selective cases, especially with increasing incidence of drug resistant malaria? Should not the policy of treatment of malaria be different in the areas of stable and unstable malaria transmission zones, rather than having a blanket

rule and uniform guidelines of usage of ACT throughout the country? It is also important to address the issue of increasing incidence of *P. falciparum* in unstable transmission zones and also the situation in the states where *P. falciparum* has not been rampant. There needs to be a reassessment as far as the use of ACT is concerned. As pediatricians, we have a much larger and responsible role to play for malaria to be controlled in our community. The WHO guidelines and the IAP Consensus Statement needs to review the issue of ACT in falciparum malaria in children according to the areas of stable and unstable malaria transmission zones. At the same time, there is also a need to introduce the ACT in Integrated Management of Neonatal and Childhood Illness (IMNCI) guidelines for the effective implementation of ACT at the primary health centres in malaria-endemic zones [4].

SRIRAM POTHAPREGADA
Department of Pediatrics,
Indira Gandhi Medical College and Research Institute,
Pondicherry, India.
psriram_ped@yahoo.co.in

REFERENCES

1. Directorate General of Health Services. National Vector borne Disease control programme. Diagnosis and Treatment of Malaria 2013. New Delhi: Ministry of Health and Family welfare; Government of India, 2013.
2. World Health Organization. Treatment of *P. falciparum* malaria. Guidelines for Treatment of Malaria. Geneva: World Health Organization; 2010. p.13-47.
3. Breman JG. Resistance to artemisinin-based combination therapy. Lancet Infect Dis. 2012;12:820-2.
4. Kundu R, Ganguly N, Gosh TK, Chaudhary P, Shah RC. Diagnosis and management of malaria in children: Recommendations. Indian Pediatr. 2008;45:731-5.