

Is Indigenously Prepared Ready-to-use Therapeutic Food Effective in Severe Acute Malnutrition?

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Severe acute malnutrition (SAM) is defined as weight-for-height Z-score (WHZ) $< -3SD$ and / or bilateral pitting edema. In children aged 6-59 months, mid upper arm circumference (MUAC) of less than 11.5 cm is also used as an additional criterion [1]. Untreated SAM carries a higher risk of morbidity, mortality and lower intellectual development. World Health Organization (WHO) recommends an integrated approach to treat children with SAM by (i) categorizing them as uncomplicated or complicated (presenting with medical complications or poor appetite); and (ii) treating them in community or health facility, respectively. Community-based management has a lesser exposure to hospital-acquired infections. In addition, mother/caregiver has more time to take care of other children and household works; family will have lesser financial burden [2].

Several countries are using ready-to-use therapeutic food (RUTF) for management of children with SAM in the community. Advantages of RUTF include its content (calorie dense, micronutrient rich), feasibility (simple to administer, store and distribute), and low risk of bacterial contamination [3,4]. Implementation of community-based management of SAM in India is slow, largely due to lack of consensus regarding appropriateness of commercial RUTF in our setting. Concerns have been raised about possibility of commercial exploitation, risk of developing metabolic diseases, and adverse effect on traditional dietary practices [5].

In this issue of *Indian Pediatrics*, Jadhav, *et al.* [6] report their experience of managing SAM using indigenously prepared RUTF in four different treatment models. One of these models was executed in hospital setting in which the efficacy of RUTF was compared with standard nutrition therapy in a randomized controlled manner. In the other three models, only RUTF was used in different settings *viz.* facility based, doorstep child-care center based, and community based. Higher weight gain was reported at 2 weeks in group treated with RUTF; larger proportions achieved target weight and recovered

at 8 weeks, and there were lesser episodes of morbidity in the study group. Authors concluded that RUTF appears to be superior to standard nutrition therapy in promoting weight gain in children with SAM. Higher weight gain and recovery with locally produced RUTF have also been reported by another randomized controlled trial from Delhi, India [7].

However, results of this study need to be interpreted with caution. The outcome criteria used by the authors – 15% weight gain from the time of enrolment – has been now replaced with WHZ ≥ -2 Z-score, no edema for at least 2 weeks, or MUAC ≥ 125 mm. Further, it is recommended that the same anthropometric indicator that is used to diagnose SAM should be used to assess nutritional recovery. Both groups were given diet providing 175 kcal/kg/day but no information is available about their actual consumption. Nutritional status data at 6 months showed higher proportion of SAM in the control group but there is no information about relapse in children who recovered at 8 weeks. There are also large number of children whose status is not known after 6 months.

Bhandari, *et al.* [7] have reported that approximately one-third of treated children slide back into moderate or severe acute malnutrition as early as 16 weeks after the end of treatment while another study from Meerut has reported low case-fatality (1.2%-2.7%) with spontaneous long-term recovery in around 25-30% [8]. These are important issues that need more clarity by well-designed studies.

To combat malnutrition, a holistic approach that incorporates preventive measures such as optimal infant and young child feeding (IYCF) practices, improved maternal nutrition care, improved food security throughout the year, provision of clean water, improved sanitation, and appropriate facility- and community-based care of children with SAM is needed. Management of SAM has several components like early identification in the community, treatment of infections with antibiotics

and anti-helminthics, nutritional rehabilitation, counseling of caregiver for improved feeding practices, and sensory stimulation. Emerging evidence suggests that though community management of SAM with indigenous RUTF provides best results but same time a large proportion of children improve when they are managed with local diets also. Few Indian states such as Uttar Pradesh and Madhya Pradesh have already started piloting management of uncomplicated SAM children using locally available food items through existing government service delivery mechanisms. Decision of diet should not delay implementation of community based management of SAM children.

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