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Letter to the Editor

Are ready to use therapeutic foods a solution for management of child undernutrition in India

Sir,

Childhood undernutrition is a very common problem in India. India contributes to one-fifth of global underlnutrition.[1] Thirty- eight % of Indian children have stunting and 35.7% have low weight for age. Out of these 7.4% of under-5 children suffer from severe acute malnutrition (SAM).[1] Government of India and many other Non- governmental organisations (NGOs) are working towards eliminating malnutrition. This is being done by establishment of various nutritional rehabilitation centres and malnutrition treatment centres.[2] However, in order to achieve the goals and lead to widespread coverage, community participation is a crucial step. Malnutrition is usually an incidental finding when any care giver seeks medical care for the child due to some illness.[3]

The Children identified with severe malnutrition usually require in-hospital management. In hospital care of SAM child may not be possible for majority of patients because of long stays, cost of treatment, no support to take care of other siblings of malnourished child as well as loss of wages.[4] Hence, identifying a home-based management treatment could resolve all these problems and help in improvement of child's status.

Ready to use therapeutic foods are identified as a solution to provide appropriate feeding to SAM Children. RUTF have been identified to be useful in improving the overall status of the child and has been recommended by WHO since 2005.[5] However, they have not been in demand in India due to lack of strong evidence from facility-based vs community-based trials and also due to a view that whether artificially produced RUTFs would be any better than the home prepared foods which are high in proteins and micronutrients.[6]

Bhandari et al did a Randomised Control trial(RCT) to compare the efficacy of centrally produced RUTF (RUTF-C) and locally prepared RUTF (RUTF-L) for home-based management of children with uncomplicated SAM on recovery rates compared with micronutrient-enriched (augmented) energy-dense home-prepared foods (A-HPF), the comparison group. It was a multicentric study done in Delhi, Rajasthan and Tamil Nadu with a mix of rural and urban low-income households. They identified the children with SAM by door to door visits and measuring the mid-upper arm circumference. Those having MUAC <130 mm were referred to study clinics where height and weight were measured. After identifying the children with SAM (weight for height z-score <-3 SD), the children with uncomplicated SAM were enrolled into the study after obtaining consent from the care givers.

All the children were divided into 3 groups in ratio of 1:1:1 by stratified randomisation as per site and age. RUTF-C (available as 92 gm sachet), RUTF-L (available as 250 gm jar) and A-HPF (raw food material along with micronutrient powder) were distributed to the care givers. The aim was to achieve a calorie intake of 175 kcal/kg body weight. The workers made weekly visits to the children and resolved the queries of care givers, took height and weight of child and collected empty sachets and jars. They also obtained information about number of episodes of diarrhoea, acute respiratory infections and fever. Neighbourhood peer support workers visited home several times to help and motivate caregivers feed their children in all three groups.

The study was divided into treatment and sustenance phase. The first 16 weeks i.e. when the intervention was done was considered as treatment phase. Upon completion of the treatment phase, the child was enrolled into Anganwadi centres for support. Weight and height was also obtained after 16 weeks of sustenance phase i.e. 32 weeks after the treatment phase. A total of 906 children were enrolled in the study of which 855 completed the treatment phase and 838 completed the sustenance phase. The recovery rates with A-HPF, RUTF-C and RUTF-L were 42.8%, 47.5% and 56.9%, respectively. Children in the RUTF-L group had a significantly higher rate of recovery as compared with A-HPF (adjusted OR 1.71 (95% CI 1.20 to 2.43; p=0.003). The recovery rates in the RUTF-C group compared with the A-HPF group were non-significant with OR=1.28 (95% CI 0.90 to 1.82). Among children who recovered by 16 weeks, time to recovery was significantly shorter both in the RUTF-C (adjusted difference -1.34 weeks, 95% CI -2.36 0.31; p=0.011) and RUTF-L (adjusted difference -1.17 weeks, 95% CI -2.16 to -0.17; p=0.021) groups compared with the A-HPF group. The mean (SD) weight gain (g/kg/day) in the A-HPF, RUTF-C and RUTF-L groups was 2.64 (3.47), 3.05 (3.41) and 3.52 (3.92), respectively. In sustenance phase,123 children (14.7%) met the definition of recovery, 402 (48.0%) met the definition of moderate acute malnutrition (WHZ<-2 and =-3) and 313 children (37.4%) had SAM. The proportion of children with SAM was significantly lower in the RUTF-L group (adjusted OR 0.58 (95% CI 0.40 to 0.85; p=0.005); correspondingly, those with moderate malnutrition were significantly higher (1.46, 95% CI 1.02 to 2.08; p=0.039) compared with the A-HPF group.

Comments

This is a trial for community-based management of SAM in which significant insight has been generated into the much debatable issue of use of RUTF. However, it is found that the rate, ease and extent of achieving 'cure' is far lower than that seen in African studies. In this trial, researchers aimed to achieve an intake of 175 kcal/kg body weight/ day for the enrolled children and collected consumption data for both the RUTF groups which were largely comparable. But not much difference was seen in the augumented homebased food when compared to RUTF. Local peer support groups workers were included after 40% recruitment had already been done. Hence, whether they played a significant role could only be found after comparing to those who did not have this support. This corresponds to an understanding that malnutrition cannot be sufficiently countered in the field without local field worker who can support and supervise care-givers in practical ways. However, the authors do not have any evidence on this.

In fact, comparing ready-to-use foods with the raw material that was supplied in the augmented home foods category, but had to be cooked, complicates the results. RUTF-L (being different from RUTF-C only in texture) was found to be inexplicably better than A-HPF, achieving a 57% recovery rate compared to 43% in 16 weeks. However, after 16 weeks of sustenance phase the overall cured children were just 15%. Thus, the data clearly shows that the overall impact across all three arms is low, with over 40% children remaining in SAM even after a prolonged period of intervention in all arms. They have also not compared the prolonged period of intervention with the standard 8 weeks to check if prolonged treatment could have better effects.

As far as the malnutrition burden in India is concerned, 36% children are under weight and 38% children are stunted. Even after having various programmes running for years we have not been able to curtail it and hence, there is need of finding limitations of the programmes and finding solutions. RUTF is well approved for facility use in India but most parents are not able to avail these services due to personal reasons. Hence, it is very important to provide services at home where the issues like care of other children and travel expenditure can be managed. So, this study would have been a pioneer in making RUTF readily a product of use in SAM but non-significant findings fail to prove it beneficial over home made foods. Also, one packet of RUTF costs around Rs. 25 which would be Rs. 750/month. So, in a country like India where 21.9% of the population still lives below poverty line and SAM has direct linkages with poverty, RUTF would not be beneficial and cost-effective intervention.

Hence, it raises a question whether RUTF would be anytime beneficial over the existing alternatives for SAM prevention and management supporting families through comprehensive childcare programmes that organize care, health and nutrition using local resources, needs to be taken seriously and tested if required.

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