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Original Research Article

Changes in Anthropometric Indicators Using Therapeutic Food (F75/F-100) Versus Traditionally Used Home-Based Food in the Treatment of Severely Acute Malnourished Children: A Comparative Study

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Abstract:

Background: One of the biggest causes of morbidity and mortality among children under five is still severe acute malnutrition (SAM). For inpatient management, therapeutic feeding regimens like F-75 and F-100 are advised; yet, in settings with limited resources, home-based dietary approaches are still frequently employed.

Objective: To evaluate the effects of therapeutic food (F75/F-100) versus conventional home-based meals on anthropometric changes in children with severe acute malnutrition.

Methods: 60 children with SAM who were admitted over a one-year period were included in this retrospective comparative analysis. Thirty children received home-based food therapy, and thirty received therapeutic feeding as advised by the WHO (F75/F-100). Anthropometric parameters including weight gain, Mid-Upper Arm Circumference (MUAC), and Weight-for-Height Z-score (WHZ) were analyzed. The independent t-test was used for statistical analysis. P-values less than 0.05 were regarded as statistically significant.

Results: In comparison to the home-based diet group, the therapeutic food group demonstrated a substantially higher mean weight increase (1.8 ± 0.4 kg vs 1.1 ± 0.3 kg, p=0.001), better WHZ improvement (1.2 ± 0.4 vs 0.6 ± 0.3, p=0.003), and greater MUAC improvement (1.5 ± 0.3 cm vs 0.8 ± 0.2 cm, p=0.002).

Conclusion: In children with SAM, therapeutic feeding with F75/F-100 leads to a noticeably greater anthropometric improvement than home-based nutritional therapy.

Introduction

Severe Acute Malnutrition (SAM) is still a serious public health issue, especially in developing nations where undernutrition is a major cause of morbidity and mortality in children mal five. A weight-for-height Z-score (WHZ) of fewer than −3 standard deviations, nutritional edema, or a Mid-Upper Arm Circumference (MUAC) of less than 11.5 cm are the three criteria used by the World Health Organization (WHO) to identify SAM. Due to compromised immune function, children with SAM are significantly more likely to experience negative outcomes and are more vulnerable to severe and recurring infections. If left untreated, the condition is linked to delayed growth and development, extended hospital stays, and a significantly increased risk of death [1].

The WHO advises a systematic, stepwise management approach to address this serious condition. F-75, a therapeutic milk formula intended to rectify metabolic abnormalities and offer controlled calorie and protein intake, is used during the first stabilization phase. F-100, which is high in energy and encourages quick catch-up growth, is used to start the rehabilitation phase when the child is stable and their appetite has improved [2]. When properly applied in inpatient settings, this graded therapy strategy has been demonstrated to dramatically increase nutritional recovery and survival rates [3].

Traditional home-based dietary management is still commonly used in many contexts with inadequate resources, even in the face of standardized treatment procedures. Reliance on locally prepared foods is exacerbated by factors like lack of access to therapeutic feeds, restricted access to healthcare facilities, and budgetary limitations. These home-based methods' efficacy and nutritional sufficiency, however, continue to vary. Therefore, the purpose of this study is to assess and contrast how well home-based food therapy and therapeutic feeding (F75/F-100) improve anthropometric results in children with SAM.

Methods

Study Design: Retrospective comparative study.

Study Duration: One year at Patna medical college and hospital, Patna.

Study Population: 60 children diagnosed with Severe Acute Malnutrition.

- Group A: 30 children treated with therapeutic food (F75/F-100)
- Group B: 30 children treated with home-based diet

Inclusion Criteria

- Age 6 months to 5 years
- Diagnosed with SAM
- Complete medical records

Exclusion Criteria

- Chronic systemic illness
- Congenital anomalies
- Incomplete anthropometric records

Data Collection

Records were reviewed for:

- Age and gender
- Baseline anthropometric measurements
- Weight at discharge
- MUAC changes
- WHZ score improvement

Statistical Analysis: The mean ± SD was estimated. The independent t-test was employed for comparison. A p-value of less than 0.05 was considered to be statistically significant.

Results

Table 1: Baseline Characteristics

Parameter	Therapeutic Food (n=30)	Home-based Diet (n=30)	p-value
Mean Age (months)	24 ± 8	23 ± 7	0.62
Male (%)	53%	50%	0.81
Baseline Weight (kg)	6.5 ± 1.2	6.6 ± 1.1	0.74
Baseline MUAC (cm)	10.8 ± 0.4	10.7 ± 0.5	0.55

No statistically significant difference in baseline characteristics.

Table 2: Comparison of Anthropometric Improvements

Parameter	Therapeutic Food	Home-based Diet	p-value
Mean Weight Gain (kg)	1.8 ± 0.4	1.1 ± 0.3	**0.001**
MUAC Gain (cm)	1.5 ± 0.3	0.8 ± 0.2	**0.002**
WHZ Improvement	1.2 ± 0.4	0.6 ± 0.3	**0.003**

Statistically significant improvement was observed in all anthropometric indicators in the therapeutic food group.

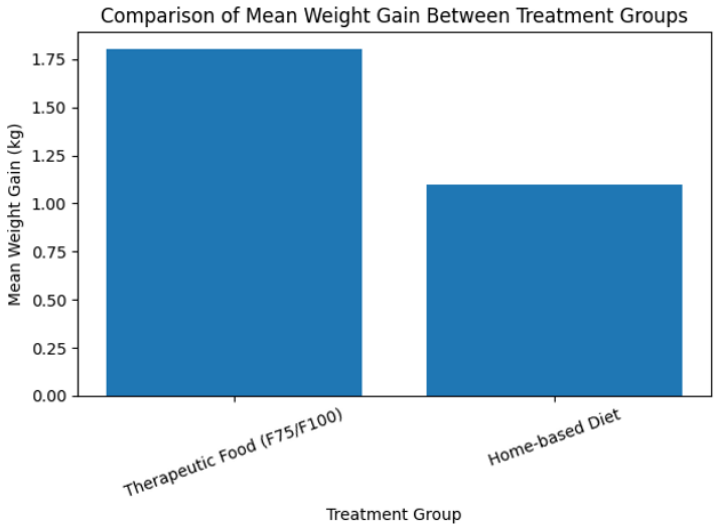

Figure 1: Comparison of mean weight gain between treatment groups

Table 3: Recovery Rate

Outcome	Therapeutic Food	Home-based Diet	p-value
Nutritional Recovery	27 (90%)	20 (66%)	0.03
Non-recovery	3 (10%)	10 (34%)	

Therapeutic feeding showed significantly higher recovery rates.

Discussion

In contrast to children treated with home-based food treatment, this comparative retrospective study showed that children receiving therapeutic feeding with F75/F-100 had noticeably larger gains in important anthropometric markers, such as weight gain, MUAC, and WHZ scores. The scientifically developed composition of therapeutic feeds may be responsible for the better results seen in the therapy group. These high-calorie formulas offer the ideal protein–energy ratio required for quick catch-up growth [4]. They are also supplemented with vital vitamins and minerals, which aid in addressing underlying micronutrient deficits frequently observed in children who are extremely malnourished [5]. Consistent intake and proper progression from stabilization to rehabilitation phases are further guaranteed by the regimented and thoroughly watched eating routine employed in therapeutic regimens [6].

On the other hand, home-based diets frequently lack standardized calorie density and proper micronutrient balance, despite being widely available, affordable, and culturally acceptable [7]. Inconsistent nutritional rehabilitation may also result from variations in feeding procedures and preparation techniques [8]. The therapeutic feeding group experienced a much greater recovery rate (90% vs. 66%), highlighting the efficacy of WHO-recommended procedures in treating severe acute malnutrition [9]. However, some limitations should be taken into consideration when interpreting the results, such as the relatively small sample size and retrospective study design, which may have an impact on generalizability.

Conclusion

When compared to conventional home-based diets, therapeutic feeding with F75/F-100 considerably improves anthropometric markers and recovery rates in children with severe acute malnutrition. To enhance nutritional results, hospital settings should reinforce the use of standardized therapeutic feeding programs.

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