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Community-Based Management of Acute Malnutrition: An Effective Intervention for Under-Nutrition

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Abstract

Globally, Acute Malnutrition (AM) causes more than 50% of childhood mortality among children under five years of age. Before embracing the use of ready-to-use therapeutic foods, the management of AM was restricted to hospitals bases. However, the current availability of Ready to Use Therapeutic Food (RUTF) has enabled undernourished children to be treated in their communities. RUTF has proved to be highly effective in treating severely malnourished children and allows households to facilitate food intake without supervision from health care professionals. Recent evidence shows that Community Management of Acute Malnutrition (CMAM) is a cost-effective method in management and prevention of malnutrition with high impact on population health, especially in reducing childhood mortality attributed to severe acute malnutrition (SAM). The unique components and principles of CMAM enable early detection and treatment of AM, with high coverage rates. Despite the proven effectiveness of CMAM programs, CMAM still draws insufficient attention for global implementation, and thus the need to integrate CMAM as well as health education and promotion programs into national health systems..

Keywords: Ready to use therapeutic foods; Community management of acute malnutrition; Severe acute malnutrition; Under-nutrition

Introduction

Malnutrition is a widespread health issue in developing countries [1] and is one of the most significant public health concerns in children in sub-Saharan Africa and South-Asia [2,3]. Undernutrition occurs mostly in children <5 years of age and manifests in the form of stunting, wasting and bilateral pitting oedema, of which severe wasting and oedema are attributes of severe acute malnutrition. In recent years the prevalence of children with severe malnutrition has increased in the world, causing severe susceptibility to acute infectious diseases and death [4,5]. The effects of undernutrition increased, particularly in those living in circumstances of extreme poverty in the developing world [6]. Malnutrition is a direct result of an inadequate diet or indirectly caused by underlying infections or illness among children [6]. The recent report from UNICEF shows poor nutrition causes about 20% of deaths in eastern and southern Africa [5]. In 2017, the World Health Organization (WHO), United Nations Children's Fund (UNICEF), and the World Bank estimated that wasting alone affects lives of approximately 50.5 million children under 5 years of age globally [7]. According to the recent Global Nutrition Report of 2018, malnutrition remains severe, and stunting affects over 150.8 million children below five years of age [8]. Severe acute malnutrition (SAM) remains a crucial problem in developing areas, where over 3.5 million children die of starvation each year. Undernutrition affects child cognitive development and causes other permanent severe social and health consequences affecting the quality of life [9,10] thus reducing child malnutrition is crucial to child survival and sustainable development [11,12].

Before CMAM, AM was classified as either SAM or moderate acute malnutrition (MAM), all patients with SAM were admitted to therapeutic feeding centres, and treated with therapeutic milk, commercially called F75 and F100. This approach posed significant challenges to effective treatment for both health systems and

patients such as; overcrowding and cross-infection, long recovery periods, high opportunity costs for families to access and remain in treatment, costly and resource-intensive services for health systems to sustain, low coverage of services, among others [3]. However, with the recent development of RUTF in the mid-1990s, vast numbers of children with SAM could be treated in their communities without being admitted to health facilities [13,14]. RUTF could be safely consumed at home and so replaced F100. RUTF being dehydrated and sealed with a longer shelf life at room temperature; it offers an added benefit of a lower risk of bacterial contamination [15]. This innovative product allowed treatment for uncomplicated cases of SAM to be shifted to the home, paving the way for CMAM. The first pilot project tested the CMAM approach in 2000 in Ethiopia during humanitarian emergencies [3]. It was proved to be much effective that it was endorsed by United Nations (U.N.) agencies in 2007 [16] and is currently considered the global standard of care for managing AM in not only emergency but also development contexts [17].Community-based Management of Acute Malnutrition (CMAM) is thus a new cost-effective approach that enables timely detection of SAM in communities and delivery of treatment for those without medical complications with RUTF or other nutrient-dense foods at home [18,19]. This has proven to reduce childhood mortality attributed to SAM if well implemented [20-22]. Therefore, this mini review aimed to describe current approaches and evidence regarding malnutrition treatment and to highlight the effectiveness of CMAM as a new approach for intervention and control for Under-nutrition.

Community-based Management of Acute Malnutrition (CMAM) Concept

The CMAM program is initiated by volunteers who use simple measures of upper arm circumference (MUAC) to promptly screen potential SAM children and refer them to a clinic for evaluation before they seriously become ill [23]. At the health centre, those children for whom a SAM diagnosis, with complicating medical conditions are referred to inpatient facilities (stabilisation centres) for more intensive treatment, while those diagnosed as SAM without complications, and with appetite receive RUTF, which is administered at home [16,24]. Outpatients in the CMAM program return to the clinic weekly for evaluation and more supply of RUTF and those admitted to an inpatient facility are discharged when their medical conditions are treated and also visit the clinic weekly for check-ups and RUTF. When a child's weight gain or MUAC exceeds a preset cutoff point, he or she is considered cured of SAM and discharged from the CMAM program [23]. Health professionals suggest that CMAM should be implemented in any community where at least 10% of children under 5 are moderately malnourished (low weight for height) and in the presence of aggravating factors such as food insecurity, widespread infectious diseases and high crude death rate [20]. The program targets children below 5 years old and their families. However, the whole community is involved. Community leaders, volunteers, health staff as well as families participate in the screening, care and follow up of children with acute malnutrition [25,26]. CMAM programs also work to incorporate treatment with various other longer-term interventions, for example, Infant and Young Child Feeding (IYCF), Nutrition Education, food security among others which are designed to reduce the occurrence of malnutrition and improve public health as well as food security in a sustainable manner [27,28].

Key Components of Community-based Management of Acute Malnutrition (CMAM)

CMAM starts with

Community mobilisation

which involves active case finding by community volunteers by measuring MUAC of all children under five to screen those with malnutrition, and this builds a relationship and fosters community participation [29,30].

Supplementary feeding programme (SFP)

where families of children with moderate malnutrition with no medical complications are given take-home food rations and routine significantly treatment. SFP also provides support to other vulnerable individuals like pregnant and lactating mothers [30,31].

Outpatient therapeutic programme (OTP)

This caters for children with severe acute malnutrition but no medical complications (usually 80-85% of children) where they are given home-based treatment and rehabilitation using RUTF. It also provides food rations to the whole family of each severely malnourished child and children's progress is monitored through regular outpatient clinics [32,33].

Stabilisation centre/inpatient care

This provides intensive in-patient medical and nutrition care to acutely malnourished children with complications like anorexia, severe medical issues or severe oedema. It links with OTP to allow early discharge and continued treatment in the community [34,35].

Effectiveness and Principles of Community-based Management of Acute Malnutrition (CMAM)

CMAM is a useful approach to rehabilitating malnourished children and reducing childhood mortality attributed to acute malnutrition. The approach is effective due to several reasons which are

Community based

As children are cared for and treated in their communities, not in health centres and the whole family is involved. The caregivers can continue their daily activities, and this increases access and participation in the programme, ensuing higher coverage and better results [26,36].

Caregivers

community volunteers frequently screen and monitor all children to promptly identify and treat cases of malnutrition,

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which fosters excellent coverage, faster rehabilitation and lower mortality [37,38].

Triage approach

Most children with SAM can be treated at home, which protects them from exposure to hospital infections. Only those with severe medical conditions are admitted to Stabilisation Centres, and they are discharged back to the community for follow-up by the OTP as soon as possible. This furthermore reduces mortality, and it is cost-effective compared to inpatient care [24,39,40].

Building community capacity

Due to community participation in treatment and prevention activities, CMAM programs increase community ownership of malnutrition [26,41].

The principles of CMAM include

Maximum coverage and access- to reach as many children with AM as possible. Timeliness- which enables early identification and referral before severe medical complications develop, and Appropriate care- tailored according to care needed thus outpatient care for children with SAM without medical complications as long as required and inpatient care only for those with SAM and medical complications. Evidence from emergency contexts has shown that about 80% of children with SAM can be treated as outpatients, with no need for admission in health centres [17].

Challenges Faced by Community-Based Management of Acute Malnutrition (CMAM)

Despite CMAM's proven effectiveness in reducing child malnutrition, problems remain with program implementation, uniquely reliable funding and coordination between partners and a secure supply chain for medicine and food are essential to the program's success. Besides, community health workers need adequate training and supervision for prompt follow-up during the referral process [30,42].

Conclusion

There is an overlap between SAM and HIV/AIDs infection, food insecurity and poor sanitation, especially in limited-resource areas and thus strong links between CMAM and, AIDS and livelihood promotion programs are indispensable. Never-the-less, CMAM quickens active case identification and prompt treatment for malnutrition and so it is critical to include it along with preventive action to the list of cost-effective interventions to reduce child mortality.

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