

## Treatment of Severe Acute Malnutrition in Infants Aged <6 Months in Niger

Sabine B. Vygen, MD<sup>1,2</sup>, Dominique Roberfroid, MD, PhD<sup>3</sup>, Valérie Captier<sup>2</sup>, and Patrick Kolsteren, MD, PhD<sup>3</sup>

**Objective** To report a nutritional rehabilitation program in Niger for the management of severe acute malnutrition in infants aged <6 months.

**Study design** This is a presentation of a case series (n = 632) of young infants who were admitted to a nutrition rehabilitation program in 2010-2011. The main characteristics of the inpatient treatment protocol where the use of diluted F-100 milk via a supplementary suckling technique until exclusive breastfeeding was reinitialized, coaching of mothers on infant feeding, and intensive antibiotic therapy as indicated during the stabilization phase. Semistructured interviews were conducted with 103 mothers.

**Results** Rates of recovery, mortality, and default were 85% (537 of 632), 6% (37 of 632), and 9% (55 of 632), respectively. The majority of infants had an infectious disease at study entry (81%), particularly acute watery diarrhea and respiratory tract infections. Infection on admission was a predictor of death during treatment (OR, 3.9; 95% CI, 1.6-9.2). Anorexia at entry was a risk factor for treatment failure (OR, 4.4; 95% CI, 1.71-11.1). Interviews revealed a very low rate of exclusive breastfeeding (3%), with delayed initiation in 68% of cases. Traditional beliefs, perceived insufficiency of breast milk, and psychological problems played important roles in feeding choices.

**Conclusion** Severe acute malnutrition in infants aged <6 months can be successfully treated by managing cases as inpatients with an adapted protocol, intensive clinical supervision, and intensive drug treatment if indicated. Whether similar outcomes are achievable in community-based programs remains to be verified. Effective interventions for improving breastfeeding practices are needed. (*J Pediatr* 2013;162:515-21).

Severe acute malnutrition (SAM) in children aged <5 years is a major public health concern, currently affecting approximately 20 million individuals worldwide.<sup>1</sup> Although infants aged <6 months (young infants) constitute a minority of these patients, an estimated 3.8 million of such infants are affected.<sup>2</sup> Severe malnutrition in this age group has dire consequences in terms of survival and morbidity.<sup>3</sup> During no other period in life do development, maturation, and growth occur with such velocity and intensity as in the first 6 months.<sup>3</sup> Neurodevelopment in young infancy is especially sensitive to undernutrition.<sup>4</sup> Severe malnutrition will affect an infant's future physical, social, and mental development.<sup>5</sup> This problem has been largely neglected by clinicians and researchers, on the assumption that infants aged <6 months are predominantly breastfed and thus relatively protected against SAM.<sup>6</sup> Although these patients have different nutritional requirements than older children and are more vulnerable to nutritional imbalances, mineral and fluid overload, hypothermia, and infectious diseases,<sup>7</sup> standardized age-specific management guidelines are lacking. Protocols for older children are often extended to this age group owing to the absence of age-specific evidence-based treatment protocols, nutritional regimens, and admission and discharge criteria.<sup>3,8</sup> Thus, there is an urgent need to better understand how to best address the specific needs of this population in clinical settings.

Here we report a case series of 632 young infants with SAM who were admitted to an inpatient therapeutic feeding center (ITFC) in southern Niger run by the nongovernmental organization Médecins Sans Frontières Switzerland (MSF-CH). The infants were treated in accordance with the national protocol of the Republic of Niger,<sup>9</sup> complemented by MSF-CH guidelines for treatment of medical complications associated with SAM.<sup>10</sup> However, such protocols are not entirely evidence-based, given the paucity of scientific evidence on treatment of malnutrition in young infants. Thus, it is crucial to assess whether they are

EBF	Exclusive breastfeeding
ICU	Intensive care unit
IMS	Insufficient milk syndrome
ITFC	Inpatient therapeutic feeding center
IV	Intravenous
MSF-CH	Médecins Sans Frontières Switzerland
MUAC	Mid-upper arm circumference
SAM	Severe acute malnutrition
SST	Supplementary suckling technique
W/L	Weight-for-length
WHO	World Health Organization

From the <sup>1</sup>Institute of Tropical Medicine and International Health, Charité Medical University, Berlin, Germany; <sup>2</sup>Médecins Sans Frontières, Geneva, Switzerland; and <sup>3</sup>Nutrition and Child Health Unit, Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium

The authors declare no conflict of interest.

Portions of this study were presented at the annual meeting of the German Society of Tropical Pediatrics, January 2012, Eisenach, Germany.

0022-3476/\$ - see front matter. Copyright © 2013 Mosby Inc. All rights reserved. <http://dx.doi.org/10.1016/j.jpeds.2012.09.008>

clinically appropriate (ie, their use yields good treatment outcomes). We also aimed to gain insight into the profiles of the infants and their mothers, of the mothers' reasons for feeding choices, and challenges involved, as well as to identify possible underlying causes of SAM in this age group.

## Methods

Since 2005, MSF-CH has intervened in the Zinder region of southern Niger with 2 large medico-nutritional programs for children aged <5 years with SAM. Mothers either bring their children directly to the ITFC or are referred by a health center. A minority of children are admitted after active case finding by community health workers. The program's coverage area extends into northern Nigeria. The Republic of Niger is situated in one of the hottest regions of the globe, with savannah vegetation. The population lives mainly on subsistence farming of millet, sorghum, corn, and peanuts.<sup>11</sup> In the months of the hunger gap (mid-June to the end of September), many men from the area migrate to neighboring Nigeria in search of work. Despite an <5-year mortality rate of 160 per 1000 live births,<sup>12</sup> Niger has one of the world's highest demographic growth rates (3.3%), owing to the very high fertility rate of 7.8 children per woman.<sup>11</sup> The prevalence of HIV in adults is <1%.<sup>12</sup> Data on the HIV prevalence in infants are lacking. According to the latest national nutritional survey carried out in May-June 2011 by the government of Niger, the prevalence of global acute malnutrition for children aged 6-59 months in the Zinder region was 11.1% (95% CI, 9.2-13.3), above the emergency threshold, and the prevalence of SAM was 1.6% (95% CI, 1.0-2.4).<sup>13</sup> Infants aged <6 months were routinely excluded from surveys, and no data on the prevalence of SAM in these infants are available.

Young infants with SAM were admitted as inpatients to a specific unit within the ITFC regardless of the presence or absence of medical complications (Table I). Depending on their clinical condition, some of the young infants required a stay in the intensive care unit (ICU) for stabilization before being transferred to the young infants' ward. In the study setting, ICU refers to a separate space with more intense surveillance and medical attention but without ventilation capability; oxygen concentrators were available. Young infants were treated with a different nutritional protocol than older children.<sup>9,10</sup> The main features of the



**Figure 1.** SST is used to administer a therapeutic milk supplement (diluted F-100 therapeutic milk; 70 kcal/100 mL) and to stimulate the mother's milk production. One end of a tube is placed in a cup with diluted F-100 milk, and the other end is attached to the mother's nipple, from which the infant sucks.

nutritional treatment were the supplementary suckling technique (SST) (Figure 1) using diluted F-100 milk,<sup>14</sup> with the goal of (re)initializing exclusive breastfeeding (EBF). A special protocol was used for infants without the possibility of being breastfed (Table II, available at www.jpeds.com). All infants received a systematic medical treatment that was intensified as necessary to treat medical complications. Details of the treatment regimen are provided in the Appendix (available at www.jpeds.com). After discharge, follow-up in the community up to the age of 6 months was initiated by MSF-CH-trained community volunteers.

All infants aged <6 months treated between July 2010 and June 2011 were included (n = 632) in our analysis. Data on main baseline measures (age, sex, nutritional status, edema, associated infectious diseases, anorexia) and treatment outcomes (cure/death/default, duration of treatment, nutritional status at discharge) were recorded. For in-depth

**Table I.** Admission and discharge criteria of the ITFC for infants aged <6 months<sup>9</sup>

Admission criteria	Discharge criteria*
<ul style="list-style-type: none"> <li>• Infant too weak to breastfeed or</li> <li>• Infant does not gain (or lose) weight at home or</li> <li>• Infant with a W/L z-score &lt; -3<sup>†</sup> or</li> <li>• Infant with bilateral edema due to malnutrition or</li> <li>• Mother absent or unable to breastfeed adequately</li> </ul>	<ul style="list-style-type: none"> <li>• Weight gain of 10 g/kg/day under EBF for 5 days and</li> <li>• Good general condition, no pathology</li> </ul> <p>If EBF is not possible (eg, orphan):</p> <ul style="list-style-type: none"> <li>• W/L z-score of &gt; -2<sup>†</sup> and</li> <li>• Ascending weight curve for at least 3 days and</li> <li>• Caretaker knows how to prepare goat's milk</li> </ul>

\*Infant considered cured.

<sup>†</sup> Infant is ≥45 cm long; WHO standards.

Download English Version:

<https://daneshyari.com/en/article/6224160>

Download Persian Version:

<https://daneshyari.com/article/6224160>

[Daneshyari.com](https://daneshyari.com)