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EDITORIAL

Addressing Undernutrition in Mothers and Children

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Growth is a continuum through intrauterine life, infancy, childhood and adolescence. The effects of nutrition and growth have major effects on childhood morbidity and mortality. Their effects also persist for the remainder of the individual's life and have an important influence on the incidence of so-called adult onset diseases of lifestyle. Factors influencing intrauterine growth are still poorly understood but important evidence-based interventions in this regard have been reported. The major determinant of growth in low and middle-income countries (LMIC) during the first six months of life is exclusive breast-feeding, and more effective and evidence-based interventions to improve breast-feeding rates and duration are urgently needed. The combination of normal intrauterine growth and good growth in the first six months of life, however, does not necessarily ensure that subsequent growth will remain satisfactory.

Large cohort studies from South Africa and other LMIC have shown an increase in the rates of stunting from 6 months to 2 years of age and this is largely related to nutrition over this period, in particular poor complementary feeding and the adverse nutritional effects of intercurrent infections. The adverse effects of mild to moderate undernutrition are often not fully appreciated. A study that analysed data from LMIC countries showed that more than half of all childhood deaths, although not the direct cause of death, were attributed to the potentiating effects of malnutrition.[1] Of these 80% were attributable to mild-moderate undernutrition rather than severe undernutrition.

Complementary feeding, i.e. the feeds given in addition to breast milk or breast milk replacements between the ages of 6 and 24 months, has a major influence on growth over this period. The paper by Mokori in this issue reports on a comparative analysis of secondary data from the Uganda Demographic and Health Surveys conducted in 2006 and then again in 2011 with specific emphasis on complementary feeding. Using the World Health Organization (WHO) definition of a "minimal acceptable diet" (MAD) which they define in their paper, there was a small yet significant increase in 2011 in those 6 to 23 months of age who received a MAD from 23% in 2006 to 26% in 2011. Although this was a welcome finding, it can be seen from these figures that around three-quarters of these children during both time periods did ***not*** receive a MAD. In addition, over the two time periods there was an increase in bottle-feeding, and a decline in breast-feeding at 2 years of age from 55% in 2006 to 47% in 2011. The combination of the decline in prolonged breast-feeding and inadequate complementary feeds is likely to be representative of most countries in sub-Saharan Africa and is a major contributor to the high levels of stunting seen.

When the components making up the MAD were analysed further, deworming and having been immunised were positively associated with some of these components. While the authors attribute this to the efforts by the Ugandan government to provide complementary feeding education during visits for these interventions, it should be born in mind that these are associations and not necessarily cause and effect. It may be that those mothers who attended clinics for these interventions were better informed about childcare and nutrition and were possibly more advantaged from a socio-economic point of view resulting in the provision of better complementary feeds. As with all associations, being hypothesis generating, they should be followed by prospective intervention studies.

The importance of providing acceptable complementary feeds and preventing stunting does not only improve, in isolation, childhood survival. Stunted children have been shown to perform less well with regard to secondary school achievement[2] thus limiting their abilities with respect to the job market. Kimani-Murage reported on the so-called double burden of malnutrition in a poor rural South African setting.[3] High levels of stunting amongst young children were seen concomitant with significant levels of overweight and obesity in adolescents and adults, especially women. This is of great relevance with regard to the development of diabetes and other diseases of lifestyle. Eating patterns are often established early on in life, and an acceptable diet in infancy and childhood may lay the basis for good eating habits throughout childhood and beyond.

While good complementary feeding is a key factor in preventing stunting and its consequences, the issue of improving maternal and child nutrition should be seen in a broader perspective, and interventions should be evidence based. Bhutta and Das recently reviewed the evidence currently available.[4] A number of maternal interventions have been shown to have a positive effect on both maternal health and birth weight. These include daily iron supplementation, micronutrient supplementation, balanced protein-energy supplementation, and antimalarial therapy in areas where the malaria incidence is high. All of these have been shown to improve birth weight overall and reduce the incidence of intrauterine growth restriction.

As regards interventions after birth, education and counselling regarding breast-feeding have been shown to improve the rate and duration of exclusive breast-feeding. Vitamin A supplementation and intermittent iron therapy both have a positive effect on overall morbidity and mortality. Recurrent episodes of diarrhoea and lower respiratory infections have an adverse effect on linear growth and preventive zinc supplementation has been shown to reduce the number of such episodes in targeted populations. Similarly, regular hand washing by childcare providers and provision of clean water has an effect on diarrhoea morbidity.

Thus a multipronged approach to maternal and childhood undernutrition is needed. Clearly, not all of the above interventions may be applicable to all settings. It is thus important for each region to evaluate and determine the most appropriate interventions which are applicable in a given setting. However, scaling up a package of interventions including efforts to improve complementary feeding is urgently required to improve undernutrition of mothers and children.

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