Abstract

CHANGE: A Multi-Country Cohort Project Exploring Child Malnutrition and Adult Non-Communicable Disease: Generating Evidence on Mechanistic Links to Inform Future Policy/Practice †

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Abstract: Background and rationale: Child malnutrition is a major global public health problem highlighted by Sustainable Development Goal 2 (“End hunger”). Whilst current malnutrition treatment programmes in humanitarian and low/middle-income country settings focus on the rapid recovery of weight and fast post-malnutrition growth, evidence from small infants in high-income settings suggests that too fast catch-up growth has a risk of later-life non-communicable disease (NCD). We thus aim to improve severe malnutrition treatment programmes by better understanding the links between infant/child undernutrition and longer-term (adult) cardiometabolic NCD. Our objectives are as follows: 1. explore different patterns of post-malnutrition weight gain/growth; 2. investigate the associations between weight gain/growth during and after malnutrition and NCD risk profile as assessed by adults/in later life; 3. understand how the following may influence the risk of later-life NCD: a. the timing of the malnutrition, b. the severity of malnutrition, and c. different patient management approaches (NB., Jamaica used inpatient-only management; Malawi was hybrid; Ethiopia used outpatient-only care). Methods: We will use already collected data from three cohorts of survivors of child malnutrition: Jamaica were originally treated for malnutrition in 1960–95; Malawi was originally treated in 2006–7; Ethiopia was originally treated in 2014–15 We will carry out the following steps: 1. pool data from our three cohorts, identifying and grouping common variables; 2. generate new exposure variables of “post-malnutrition growth” (since there is no one standard definition of this, we will use six different alternatives defining growth in slightly different ways); 3. summarise NCD outcome variables already available in the datasets (e.g., BP, body composition, fasting glucose, and other blood markers of NCD risk); 4. use regression analysis to explore the association between early-life post-malnutrition growth and later-life NCD/NCD risk. We hypothesise that faster post-malnutrition growth is associated with greater NCD risk. Results: The preliminary results from Jamaica and Malawi suggest that for children who grew the fastest, post-malnutrition have associated cardiometabolic NCD risk later in life. Conclusions: Even though our cohorts are in low- and middle-income countries, there are lessons to be learned for other countries undergoing nutrition transition and disadvantaged/vulnerable populations in high-income countries.

Keywords: severe malnutrition; post malnutrition weight gain; non-communicable disease risk
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