OPTIDIAG: BIOMEDICAL INVESTIGATIONS FOR OPTIMIZED DIAGNOSIS AND MONITORING OF SEVERE ACUTE MALNUTRITION (SAM): ELUCIDATING THE HETEROGENEOUS DIAGNOSIS OF SAM BY CURRENT ANTHROPOMETRIC CRITERIA AND MOVING BEYOND

Today, the World Health Organisation (WHO) recommends two anthropometric tools to diagnose and discharge children with severe acute malnutrition (SAM): mid-upper arm circumference (MUAC) or weight-for-height Z-score (WHZ). With WHZ currently only practically feasible in primary health facility settings, MUAC is increasingly used in community settings, in addition to primary health facilities. It is recognised that these two diagnostic approaches do not effectively diagnose the same children. Use of either individual measure may miss a critical portion of the SAM caseload in many countries.

Project Summary

The anthropometric tools explained above are widely and successfully used to evaluate health and nutritional risk, especially in children. However, anthropometric measurements do not give direct information on what is going on inside the body of children with SAM — they are only proxy measures for an underlying clinical condition that is difficult to assess.

The primarily objective of the OptiDiag project is to fill a priority research gap with new, robust, scientific evidence that aims to describe and compare nutritional needs and risks for malnourished children so that policy makers can make an informed decision on which anthropometric category to target for treatment. Most importantly, the evidence will help policy makers understand how to effectively reach as many malnourished children as possible globally, with the existing anthropometric tools available, both WHZ and MUAC.

The study directly evaluated vulnerability in children with SAM at key time points during treatment: at admission, after 2 weeks, and around the time of discharge. A series of clinical indicators including, leptin, bioelectrical impedance parameters, as well as a panel of 17 additional biomarkers, each one of which would provide us with one small piece of the puzzle vis-à-vis the patient’s clinical status. This ranged from biomarkers of micronutrient deficiency, body composition and energy metabolism, to non-specific immune response and infection.

RESEARCH CATEGORY:
Innovative approaches to diagnosis of acute malnutrition

INTERVENTION AREA:
Cox’s Bazar, Bangladesh; Fada N’Gourma, Burkina Faso; Monrovia, Liberia

DONOR:
ECHO; HIF; ACF Foundation

PARTNERS:
Action Contre la Faim France; UGent; AgroParisTech; Duke University Medical Center; University College of London

DATES RUNNING:
Started: May 2015
Implementation: February 2017 – March 2018
Results expected: January 2019
In addition to the clinical samples, a wide range of additional data on the caretakers’ perception of her child’s health and nutrition status, the health history of our patients, their clinical evolution, weight gain, recovery speed and relapse rate were also collected. After one year of field implementation the study recruited a total of 468 patients—144 in Bangladesh, 173 in Burkina Faso, and 151 patients in Liberia. This large, diverse sample will allow the results to be robust.

Expected Impact

The OptiDiag project was designed to produce valuable evidence that fills a priority research gap in the field of humanitarian nutrition; it is therefore immensely important that we succeed in our uptake and diffusion strategy, and that our key stakeholders have access to the evidence produced, understand it, trust it, and are able to apply it to policy and practice.

The ground has never been more fertile to improve our clinical understanding, to harness the technology of today, to push diagnostic solutions for malnutrition into a future era. The results will help assess the power of current treatment programs to identify, diagnose and promote growth and recovery based on the true needs of malnourished children around the world.

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