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Variation in time and sensitivity of anthropometric measures of MUAC and WFH z-score for screening, admission to follow up and discharge of moderately malnourished children 6-59 months on supplementary feeding program

WHO recommends the use of Weight-for-Height (WHZ) and Mid Upper Arm Circumference (MUAC) for the assessment of nutritional status of children. However, results from these two anthropometric measures often differ; only a proportion, 40% of malnourished children identified by one of the indicators is also identified by the other. There is also a discrepancy in the prediction of recovery, thus the follow-up time between the two indicators. This study therefore investigated the variation in time and error margin in the use of MUAC and WHZ for the admission, follow up and discharge of moderately malnourished (MAM) preschool children on supplementary feeding program. This was study and was conducted from September 2015 to November 2015 in Moroto district in Uganda. A total of 181 MAM preschool children were recruited and followed up. MAM cases were screened in the villages using MUAC (11.5 to 12.5 cm) by VHTs (village health teams) who referred them to 14 different SFP sites and rescreened by trained nutritionist. Participants were provided with super cereal plus ration on a biweekly basis. They were followed up weekly using MUAC and WHZ until discharge for maximum of 90days. During follow-up, both MUAC and W/H measurements were both used. On admission, all the 181 participant qualified as MAM cases with MUAC >11.5cm and <12.5cm as per WHO guideline. However, on using WLZ/WHZ in z-score, 56.4% did not qualify as MAM cases as their WHZ-score is >-2SD. Only 33.7% qualified as MAM and 9.9% as Severe Acute Malnutrition (SAM) implying high sensitivity but low specificity of MUAC in identifying MAM cases during screening. The error margin or difference of 56.4% between MUAC and WHZ measure for admission could be a result of confounding by other factors such as age, sex, ethnicity and stunting which this study did not investigate. Kaplan Meir Survival analysis was carried to ascertain differences in recovery time. There was no significant difference ($p>0.05$) in time taken on using MUAC and WHZ-score for the follow up of MAM cases admitted into SFP until discharge. Based on MUAC criteria, 59% (71/120) of the followed up participants, reached the recovery cutoff point while based on W/H criterion, only 41% (9/120) reached the recovery discharge cutoff. This equally shows MUAC as a good measure for discharge as it is for admission. There was a similarity between the average length of stay (LOS), 43 days from admission to recovery using either MUAC or WHZ. The use of MUAC as a stand-alone anthropometric measure could be recommended for admission, follow up and discharge into nutritional rehabilitation program for MAM.

Biography

Amegovu Kiri Andrew has completed his PhD in Nutrition at Kenyatta University Nairobi, Kenya. He is pursuing his Post-doctorate at Atlantic International University, USA. He is the Director at Andre Food Consult, a consultancy firm in Uganda which conducts research, training and implement nutrition programs for UNWFP/UNICEF and UNHCR. He has published eight papers in reputable journals and six manuscripts are near completion. He is a Reviewer of three international journals, Assistant Professor at Juba University in South Sudan and Head of Department of Food Science & Technology.

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