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Letters to the Editor

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Reply to ST McSorley et al.

Dear Editor:

We thank McSorley, Talwar, and McMillan for their comments on the series of publications on assessing iron status in settings of inflammation, from the Biomarkers Reflecting Inflammation and Nutritional Determinants of Anemia (BRINDA) project. Specifically, the authors highlight the lack of availability of α1-acid glycoprotein (AGP) in clinical settings as a measure of inflammation and suggest instead, to use C-reactive protein (CRP) and serum albumin, which are more routinely available. We acknowledge that assessment of the acute phase response is complicated and that many potential biomarkers of inflammation could be used depending on factors such as the stage of inflammation (e.g., acute compared with chronic), clinical compared with population use, and applicability in resource-limiting settings. The advantages and disadvantages of available biomarkers of inflammation have been recently reviewed, and there has been a call for field-friendly and cost-effective biomarkers that are standardized across laboratories (1, 2). In the datasets that were compiled for the BRINDA project, no surveys measured albumin, so we were unable to assess its relationship with the various biomarkers of nutrition. Serum albumin, which has a long half-life (~20 d), is most commonly used to identify malnutrition in clinical settings; however, because albumin also acts as a negative acute phase protein, concentrations are lowered by infection, injury, or inflammation irrespective of nutritional status (3, 4). We concur with the authors that the utility of serum albumin or other inflammatory biomarkers, as a potential replacement of AGP as a measure of long-term inflammation, could be explored further.

In the authors' proposed inflammation adjustment approach, which uses a combination of CRP and albumin, they suggest stratifying the population into groups based on cut-offs of

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CRP and albumin, similar to the correction factor approach proposed by Thurnham et al. (5). We would like to emphasize one of the key findings from the BRINDA project: that the relationships between examined biomarkers of inflammation (CRP, AGP) and biomarkers of nutrition (ferritin, serum soluble transferrin receptor, total body iron, retinol binding protein) were generally linear, such that even low levels of inflammation, below previously established cutoffs, changed nutrient biomarker concentrations (6–9). Thus, as different inflammation biomarkers are explored, we suggest continued use of a regression correction approach that accounts for the full range and severity of inflammation.

In conclusion, we would like to emphasize that thus far, studies have applied the BRINDA approach only to population-based surveys of apparently healthy individuals. Applying the proposed BRINDA inflammation adjustment approaches in clinical settings remains an important research need (9). We thank the authors for emphasizing this point.

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