ABSTRACT

In-home fortification of infants with micronutrient powders (MNPs) containing 12.5 mg iron may increase morbidity from infections; therefore, an efficacious low-dose iron-containing MNP might be advantageous. Effects of iron-containing MNPs on infant growth are unclear. We assessed the efficacy of a low-iron MNP on iron status and growth and monitored safety in a randomised, controlled, double-blind 1-year trial in 6-month-old infants (n = 287) consuming daily a maize porridge fortified with either a MNP including 2.5 mg iron as NaFeEDTA (MNP + Fe) or the same MNP without iron (MNP − Fe). At baseline, after 6 and 12 months, we determined haemoglobin (Hb), iron status [serum ferritin (SF), soluble transferrin receptor (sTfR) and zinc protoporphyrin (ZPP)], inflammation [C-reactive protein (CRP)] and anthropometrics. We investigated safety using weekly morbidity questionnaires asking for diarrhoea, cough, flu, bloody or mucus-containing stool and dyspnoea, and recorded any other illness. Furthermore, feeding history and compliance were assessed weekly. At baseline, 71% of the infants were anaemic and 22% iron deficient; prevalence of inflammation was high (31% had an elevated CRP). Over the 1 year, Hb increased and SF decreased in both groups, without significant treatment effects of the iron fortification. At end point, the weight of infants consuming MNP + Fe was greater than in the MNP − Fe group (9.9 vs. 9.5 kg, P = 0.038). Mothers of infants in the MNP + Fe group reported more infant days spent with cough (P = 0.003) and dyspnoea (P = 0.0002); there were no significant differences on any other of the weekly morbidity measures. In this study, low-dose iron-containing MNP did not improve infant's iron status or reduce anaemia prevalence, likely because absorption was inadequate due to the high prevalence of infections and the low-iron dose.