

Supplementary files

Justification of Universal Iron Supplementation for Infants 6-12 months in Regions with a High Prevalence of Thalassemia

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Supplementary files

Supplementary Table 1. Hemoglobin levels and mean corpuscular volume before and after iron treatment among IDA infants with and without thalassemia minor.

Parameters	IDA infants without thalassemia minor (N=18)	IDA infants with thalassemia minor (N=16)	P
Pre-treatment Hb, g/dL			
- mean (SD)	10.2 (0.8)	10.2 (0.8)	0.893
- range	8.1-10.9	7.7-10.9	
Post-treatment Hb, g/dL			
- mean (SD)	11.8 (0.7)	11.1 (0.8)	0.013*
- range	10.6-13.1	9.7-12.6	
Increment of Hb, g/dL			
- mean (SD)	1.7 (1.1)	1.1 (0.9)	0.099
- range	0.1-4.1	0.2-3.1	
Pre-treatment MCV, fL			
- mean (SD)	68.8 (6.7)	61.8 (6.6)	0.006*
- range	56.5-83.8	48.6-69.4	
Post-treatment MCV, fL			
- mean (SD)	70.7 (4.9)	65.1 (4.4)	0.867
- range	67.5-84.1	56.0-70.1	
Increment of MCV, fL			
- mean (SD)	4.9 (3.7)	3.5 (3.4)	0.278
- range	0.3-11.8	0-9.5	

Note: Hb, hemoglobin; IDA, iron deficiency anemia; MCV, mean corpuscular volume.

Data is expressed as mean (SD) and range, according to the nature of variables. Statistical method used: Mann-Whitney U or Student's t test, as appropriate. *P < 0.05 was considered statistically significant.

Supplementary Table 2. Comparison of laboratory parameters for infants with normal iron status vs. IDA either with or without thalassemia minor.

Parameters	Infants with normal iron status: with and without thalassemia minor	infants with IDA: with and without thalassemia minor
Hb, g/dL	<0.001*	0.237
Hct, %	0.017*	0.341
RBC, x10 ⁶ /cu.mm.	<0.001*	0.013*
MCV, fL	<0.001*	0.048*
MCH, pg	<0.001*	0.132
MCHC, %	0.250	0.657
RDW, %	0.001*	0.350

Note: Hb, hemoglobin; Hct, hematocrit; IDA, iron deficiency anemia; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RBC, red blood cell count; RDW, red blood cell distribution width.

Data is expressed as *P* value, according to the nature of variables. Statistical method used: Mann-Whitney U or Student's *t* test, as appropriate.

**P* < 0.05 was considered statistically significant.

Supplementary Table 3A. Iron parameters and hepcidin levels among different populations of 110 infants with iron replete.

Populations	N	SF, ng/mL	TS, %	Hepcidin, ng/mL	Hepcidin/SF ratio
Infants without thalassemia	55	71.4 (33.4)	22.2 (16.4)	4.9 (3.8)	0.08 (0.06)
Infants with α^+ -thalassemia trait	14	77.7 (52.3)	18.6 (7.5)	4.7 (1.8)	0.09 (0.05)
Infants with Hb CS trait	6	46.3 (11.2)	21.1 (5.5)	3.3 (0.9)	0.08 (0.04)
Infants with α^0 -thalassemia trait	4	92.2 (56.2)	19.1 (8.0)	4.5 (1.6)	0.07 (0.05)
Infants with Hb E trait	23	67.0 (42.1)	21.1 (6.1)	5.6 (4.8)	0.09 (0.08)
Infants with homozygous Hb E	2	45.7 (14.5)	22.3 (9.6)	9.3 (9.1)	0.25 (0.28)
Infant with β -thalassemia trait	1	37.7 (0)	25.7 (0)	3.8 (0)	0.10 (0)
Infants with α^+ -thalassemia trait with Hb E trait	3	113.5 (20.3)	28.9 (8.8)	3.3 (0.9)	0.03 (0.01)
Infant with α^0 -thalassemia trait with Hb E trait	1	34.6 (0)	13.4 (0)	2.9 (0)	0.08 (0)
Infant with α^+ -thalassemia trait with β thalassemia trait	1	58.7 (0)	13.9 (0)	7.1 (0)	0.12 (0)
Infant with homozygous Hb E with Hb CS trait	0	-	-	-	-

Note: SF, serum ferritin; TS, transferrin saturation. Data is shown as mean (SD).

Supplementary Table 3B. Iron parameters and hepcidin levels among different populations of 96 infants with iron deficiency and/or iron deficiency anemia.

Populations	N	SF, ng/mL	TS, %	Hepcidin, ng/mL	Hepcidin/SF ratio
Infants without thalassemia	54	26.7 (25.1)	14.2 (7.1)	5.5 (4.6)	0.45 (0.71)
Infants with α^+ -thalassemia trait	10	28.9 (21.6)	12.9 (6.8)	4.3 (1.3)	0.25 (0.22)
Infants with α^0 -thalassemia trait	4	26.9 (9.2)	17.1 (6.0)	8.2 (7.3)	0.36 (0.39)
Infant with Hb E trait	1	13.0 (0)	9.4 (0)	3.2 (0)	0.24 (0)
Infants with homozygous Hb E	17	30.3 (12.6)	17.1 (8.5)	4.5 (3.0)	0.19 (0.17)
Infants with β -thalassemia trait	2	27.8 (1.6)	18.0 (10.4)	3.0 (1.0)	0.11 (0.03)
Infants with α^+ -thalassemia trait with Hb E trait	0	-	-	-	-
Infants with α^0 -thalassemia trait with Hb E trait	7	19.6 (9.0)	13.9 (7.3)	5.2 (4.3)	0.29 (0.18)
Infant with α^+ -thalassemia trait with β thalassemia trait	0	-	-	-	-
Infant with homozygous Hb E with Hb CS trait	0	-	-	-	-

Note: SF, serum ferritin; TS, transferrin saturation. Data is shown as mean (SD).