

IMPACT OF NATIONAL VITAMIN A SUPPLEMENTATION PROGRAM ON MALARIA MORBIDITY AMONG YOUNG CHILDREN IN BURKINA FASO

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Introduction

✓ Vitamin A (VA) and zinc are crucial for normal immune function, and may play a synergistic action against pathogenic phenomenon.

✓ To determine their impact on malaria morbidity among African children, a randomized placebo-controlled trial of high-dose vitamin A and a daily zinc double supplementation was undertaken in a malaria endemic area in Burkina Faso

Methods

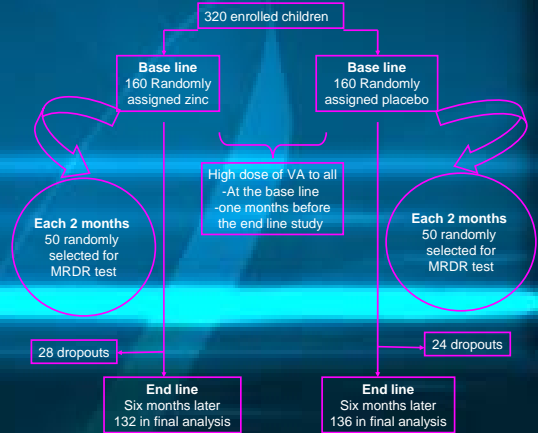
✓ A total of 320 children aged from 36 to 72 months were given two doses of VA (200,000 IU) at a six month interval

✓ 160 of them received in addition a daily 10 mg of zinc gluconate (vs. maize powder as placebo for the placebo group) six days per week.

✓ All these children from tree villages (Matourkou, Farakoba, Dingasso) were subjected to a daily follow-up for malaria case detection

✓ Cross-sectional surveys enabled the assessment of vitamin A liver reserves in the study population using modified relative dose response (MRDR) test every two months (data not shown)

Study Design



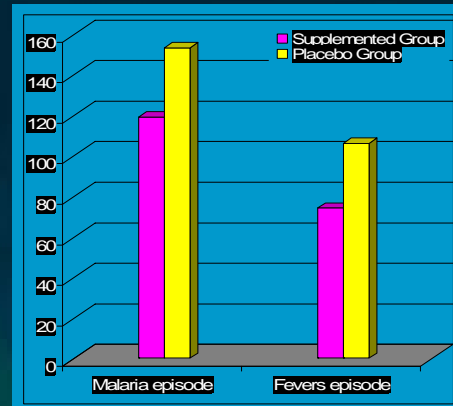
Results

Clinical and parasitological data of children at the base line and the end line studies

Clinical and Malarimetric data	Base line			End line		
	Placebo	Supplemented	P value	Placebo	Supplemented	P value
Positive thick blood smears	61.0 (51-72)	76.0 (66-85)	0.052	57.5% (46.2-68.8)	42.0% (32.8-55.2)	0.048
Geometric mean of parasitic density of Pf / μ L	1444 (923-2259)	1589 (1026-2459)	0.38	1945 (1155-3275)	1011 (647-1579)	0.85
Enlarged Spleen	61.0% (51-72)	58.0% (47-69)	0.73	57.0% (46-68)	53.0% (42-64)	0.62
Haematology						
Mean \pm SD of Hb (g/dl)	9.4 \pm 1.6	9.31 \pm 2.3	0.75	10.21 \pm 1.82	10.09 \pm 1.97	0.70
Anemia \leq 7,0g/dl [†]	5,4 (0.4-10.5)	18,0 [†] (9.3-26.7)	0.020	5,4 (0.4-10.5)	5,4 [†] (0.4-10.5)	0.71

Mean \pm SD or % (CI 95%)
[†] p < 0.05

Malaria and fevers follow-up during the 6 month study



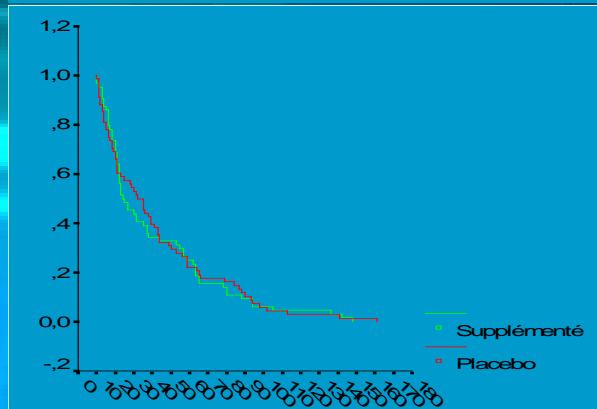
• Malaria attacks was 23% lower in Supplemented group (p=0.0096)
 • Fevers attacks was 13.3% lower in Supplemented group (p<0.001)

Parasitological and clinical follow-up of children

	Placebo	Supplemented	RR (95% CI)	p value
Mean fever episode	2.04 \pm 1.20	1.63 \pm 1.20	-	0.04 [†]
Mean malaria episode	1.50 \pm 1.01	1.00 \pm 0.93	-	0.03 [†]
Free from any pathology	17% (9-25)	31% (16-46)	-	0.05
Coughs episode	38	34	1.20 (0.61-2.34)	0.70
Diarrhoea episode	39	21	1.75 (0.89-3.45)	0.15
Mean parasites density / μ L	10672 (7589-15007)	7704 (5409-10971)	-	0.049 [†]

Mean \pm SD or % (CI 95%)

Kaplan Meier survival analysis for the 1st clinical malaria episode in each group (Log Rank ; p=0,8)



Conclusion

- Periodic high-dose vitamin A supplementation prevents vitamin A deficiency in children from Burkina Faso.
- Zinc supplementation in well vitamin A status conditions may play a key role against malaria related morbidity in endemic areas

Acknowledgments

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- To all the fields workers, the technicians and the staff of Matourkou health centre