

Introduction

Bilateral pedal oedema (kwashiorkor) is included in the case definition of severe acute malnutrition (SAM). Current standard SAM management provides ready-to-use therapeutic food (RUTF) based on kilocalories per kilogram, thus the ration increases as the child gains weight. A prior study in SAM children comparing gradual reduction in RUTF ration to standard RUTF dosage have shown similar efficacy in children with SAM but has not specifically compared such strategies in children affected by kwashiorkor (1).

Methods

- A secondary analysis of data of a non-inferiority randomised controlled trial in the Democratic Republic of Congo (2, 3) in children aged 6-59 months with uncomplicated oedema (+ or ++)
- Standard treatment: RUTF standard dosage (175-200 kcal/kg/j)
- OptiMA dosage: 175-200 kcal/kg/day until oedema resolved, then a decreased RUTF dosage from 175-200 to 50-166 kcal/kg/day as weight and MUAC increased
- A 6 months follow-up period post-inclusion (weekly outpatient visit during treatment then bimonthly visit at home)
- Recovery : MUAC \geq 125mm or WHZ \geq -1.5 in the standard group and MUAC \geq 125mm in the OptiMA group for two consecutive weeks)
- Comparison of anthropometric changes by study arm over the six-month follow-up period by using mixed-effects generalised additive models for fitting and plotting means with IC95%.

Optimising the dosage of ready-to-use therapeutic food in children with uncomplicated kwashiorkor: a secondary analysis of the OptiMA-DRC trial

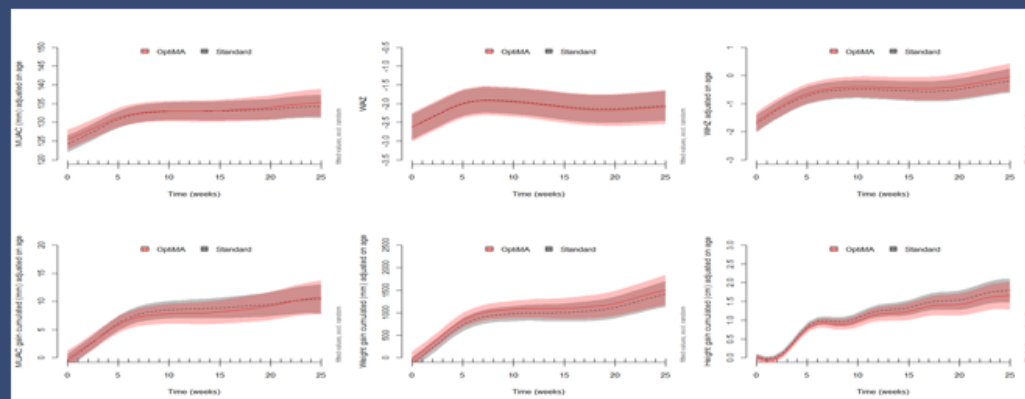
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Table 1: Results *	Standard group (n=49)	OptiMA group (n=38)	p
Baseline characteristics			
Female	22 (45%)	18 (47%)	0.99
Age, month,	26 (15 to 36)	25 (15 to 42)	0.57
MUAC, mm	123 (122 to 124)	124 (122 to 127)	0.59
Weight for height z score	-1,4(-2,1 à -0,7)	-1,6 (-2,2 à 0,8)	0.72
Recovery			
Children who recovered by 12 weeks	47 (96%)	37 (97%)	1-00
Children who recovered by 12 weeks IC95%	96% [CI95% 84%-99%]	97% [CI95% 82%-99%]	
Time to oedema resolution, weeks (n=54)	1 (1-2)	1 (1-2)	0-84
Time to recover, weeks (n=54)	4 (4-5)	4 (4-6)	0-28
RUTF distributed, sachet	119 (105-140)	67 (60-80)	<0-0001
Total weight gain, g	800 (500-1100)	850 (500 to 1175)	0-70
Nutritional status at 6 month *			
Children alive without AM nor relapse	31 (63%)	25 (66%)	0-84
Relapsed into AM	16 (33%)	9 (24%)	
AM from inclusion to Month 6	1 (2%)	1 (3%)	
Discontinued trial	1 (2%)	3 (8%)	
Children hospitalised at least once	3 (6%)	1 (3%)	0-63

* Data are n (%) or median (IQR); AM= acute malnutrition, MAM=moderate acute malnutrition, SAM=severe acute malnutrition; all parameters were calculated according to WHO definition.

Figure 1: Panel of modelled adjusted weekly means of MUAC, WHZ WAZ and MUAC, weight and height cumulated gain through 6-month by randomisation groups (n=87)



Number of observation per week by randomisation group for MUAC, WHZ, WAZ, MUAC and weight gain cumulated parameters; Total observation 1193

Results

- Similar baseline characteristics of the 87 children with oedema randomised (standard 49; intervention 38)
- Probability of reaching recovery by 12 weeks not significantly different between arms as well as time to recover and weight gain (+800g, p=0.84) (table1)
- The median number [cost] of RUTF sachets distributed per child was 119 sachets [USD 33] in the standard arm compared to 67 sachets [USD 19] in the intervention arm (p<0.01, (table1)
- Growth curves in both groups (figure 1) were similar for all parameters over the 6-month follow-up

Interpretation and conclusion

Episodes of uncomplicated nutritional oedema similarly resolved under both the OptiMA and standard arms, even if the RUTF ration was almost halved under the OptiMA strategy. This secondary analysis of the OptiMA-DRC trial shows for the first time that it is safe to reduce the dosage of RUTF as weight and MUAC increase among children with uncomplicated kwashiorkor with potential cost benefits.

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References

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