STUDY ON BP-100 IN SIERRA LEONE

BACKGROUND

F100 is a high-energy milk that is used for the treatment of severely malnourished children, based on a formula developed by WHO. BP-100 is a ”Ready To Use Food” (RTUF) in a solid form based on the F100 formula. The product has been developed and is manufactured by Compact AS. Such a product would increase the degree of freedom in the therapeutical feeding of severely malnourished children in a rehabilitation phase, (if the nutritional qualities are as good as F100.)

The main difference between F100 and BP-100 is that the latter contains iron, and that BP-100 can be served either as a biscuit or as a porridge when mixed with water, whereas F100 solely could be served as milk.

To compare the efficiency of BP-100 with the F100, ACF (Action Contre la Faim) conducted a study in Sierra Leone on a running therapeutical feeding setting for children from 1 to 5 years.

AIM OF THE STUDY

The aim of the study was to determine:

- the energy intake from BP-100 and F100 for each child
- the products effect on the intake of drinking water during and after the meals
- the weight gain for the patients from the two products.
- the practical use.

SETTING OF THE STUDY

The criteria for children admitted to the study were: ages between 12 and 60 months and a weight to height ratio below 70 percent. Exclusion criteria were severe oedema, partially breast-fed, patients who had developed complication during first phase treatment, and patients with associated diseases. The children were randomised into two group: one intervention and one control group each comprising 30 children.

In the intervention group the meals were altered between F100 and BP-100. The order of meals was changed every day. Patients in the control group followed the standard ACF protocol based on 7 feedings of F100-milk per day. Patients in both groups were offered more than the recommend food for each meal. Potable drinking water was offered in a separate cup during and after each meal. All patients received an extra meal of porridge (CSB).

THE PATIENTS IN THE STUDY

The baseline characteristics of the patients on the day of admission to the centre showed no significant difference between the two groups with regard to age, height to age, height, sex, and presence of oedema. However, the children in the intervention group had an average weight lower than the control group.

	Control group	*Intervention group*	*p-value*
Weight (kg)	7.5 (1.68)	6.7 (1.3)	0.0472
WHZ *	-3.1 (0.58)	-3.4 (0.75)	0.0740
HAZ **	-2.7 (1.46)	-3.0 (1.17)	0.3697

* WHZ = weight for height Z-score. ** HAZ = Height for age Z-score

RESULTS OF THE STUDY

1. Energy intake

The average energy intake for the children in the two groups was:

Control group:	38.9	kcal/kg/meal
Intervention group:	60.9	kcal/kg/meal

2. Water intake

The average water intake (ml/kg) was:

Group	***Meal***	***During meal***	***During + after meal***
Control group	F100	38.7	42.4
Intervention group,	F100	37.8	41.6
	BP-100	13.2	18.8

3. Weight gain

Weight gain (g/kg/day) was (standard deviation):

	Control group	***Intervention group***	***p-value***
All children	9.3 (2.9)	11.6 (4.4)	0.0525
12 – 23 mnths	9.4 (3.5)	10.3 (3.3)	0.5632
24 – 60 mnths	9.2 (2.6)	13.3 (5.3)	0.0274

Although some children had oedema it had no effect on the weight gain.

The average energy intake was significant higher for the children receiving BP-100/F100 than for the children solely eating F100. The difference in energy intake was not to the same extent reflected in the difference in weight gain between the two groups, especially not for the children in the age group 12 – 23 months. For this group the reason could be related to the fact that they received BP-100 as a biscuit whereas it is recommended that they receive BP-100 as a porridge for that age group.
There was also a significant lower water intake for the children on BP-100. Whether this difference in water intake could be related to the lower energy utilisation is not clear.

CONCLUSION OF THE STUDY

This study has shown that malnourished children receiving a combination of BP-100 and F100 during the rehabilitation phase, obtains a higher weight gain than the children receiving only F100. The energy intake from BP-100 was significant higher than from F100. The conclusion would be that BP-100 is better or as good as the F100 milk for the rehabilitation treatment of malnourished children. These results would lead to a possible more flexible treatment of children in this rehabilitation phase, by opening for more home treatment and lesser centre treatment.