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A Study of the Growth-Promoting Effect of Liv.52 in Malnutrition (A Clinical Trial)

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INTRODUCTION

Malnutrition in its various forms is a very debilitating health problem affecting over half of the world's population. Infants and children of pre-school age are the most critically affected. Malnutrition leads to retarted physical growth that may adversely affect mental development (Shah, P.M., 1976) and contributes, directly or indirectly, to high mortality and morbidity.

Many systemic illness like malnutrition, hereditary diseases and drug toxicity predispose the liver to metabolic malfunction. Malnutrition has been reported to bring about structural as well as function changes in the liver (Hutchison, J.H., 1975). In spite of tremendous advances in modern medicine, there has been no drug that stimulates the function of the liver, protects it from damage or helps in the regeneration of hepatic cells. Liv.52, an indigenous preparation of The Himalaya Drug Co. is reported to be a powerful hepatic stimulant which increases the functional capacity of the liver, accelerates cellular metabolic activity and promotes regeneration. (Joglekar *et al* 1963; Karandikar *et al* 1963; Patel and Sadre, 1963; Sheth *et al* 1969). It has been extensively tried and reported to bring about marked improvement in appetite, gain in body weight, enhanced feeling of well-being, as also stimulate normal haemopoiesis and encourage normal growth in children (Athavala, V.B., 1966; Prasad *et al* 1971; Dayal *et al* 1970).

The present study was undertaken at the Department of Child Health, Kamala Raja Hospital, Gwalior, to assess the role of Liv.52 in malnutrition on restoration of positive nitrogen balance assessed as gain in weight and increase in haemoglobin levels and serum protein values.

MATERIAL AND METHODS

Sixty seven randomly selected cases of malnutrition provided the subject material for the present study. Only children weighing less than 80 per cent of the 50^{th} percentile of the Harvard Standard were included in this trial. Base line evaluation of every child at the time of admission comprised of careful weight recording on a Detecto beam scale, haemoglobin estimation by Sahli's method and serum protein estimation by calorimetric method. Following this, Liv.52 syrup was administered to the children above one year of age, in doses of one teaspoon three times a day and Liv.52 drops to the children below one year of age, in doses of five drops three times a day. During hospitalisation, their diet consisted of milk and eggs (Protein 36 g. and calories 700 g. daily). At the conclusion of four weeks' therapy with Liv.52, the subjects were reassessed for weight gain and rise in haemoglobin and serum protein levels. The children were carefully observed for any side-effects or toxic reactions during the course of therapy.

COMPOSITION
Each ml of Liv.52 drops or 2.5 ml of Liv.52 syrup contains:

Exts.	Capparis spinosa (Kabra)	17 mg
	Cichorium intybus (Kasni)	17 mg
	Solanum nigrum (Makoi)	8 mg
	Cassia occidentalis (Kasondi)	4 mg
	Terminalia arjuna (Arjun)	8 mg
	Achillea millefolium (Gandana)	4 mg
	Tamarix gallica (Jhau)	4 mg
(Prepared in the juices and decoctions of various hepatic stimulants		

OBSERVATIONS
The symptoms on admission are summarised in Table 1. A general improvement in the symptomatology was observed after therapy. Three patients died during the therapy and they were excluded from the study.

Table I: Symptomatology (in 64 cases)

Sl. No.	Symptoms	No. of cases	Percentage
1.	Fever	47	73.4%
2.	Loose motions	36	56.2%
3.	Loss of appetite	26	40.6%
4.	Vomiting	20	31.2%
5.	Failure to thrive	17	26.6%
6.	Cough	10	15.6%
7.	Abdominal distension	5	7.8%
8.	Passing scanty urine	5	7.8%

Weight gain
Weight was recorded at the beginning of the trial and then again after 4 weeks. Table II exhibits the pattern of weight gain.

Table II: Average weight gain during therapy (in 64 cases)

Sl. No.	Age	No. of cases	% of Total	Av. Wt. Gain
1.	Upto 1 year	25	39.1	1.27
2.	1 – 2 years	19	29.7	1.21
3.	2 – 3 years	9	14.1	1.33
4.	Over 3 years	11	17.1	1.36
		64		

Haemoglobin
As shown in Table III rise in the haemoglobin level was observed in 40.6 per cent of the cases in the range of 0.1 to 1.0 g%; while in 23.4% cases, it was noticed to rise in the range of 1.1 to 2.0 g%. A few cases (6.2%) showed rise of haemoglobin level in the range of 2.1 to 3.0 g%. However, 19 cases did not show any significant improvement in this respect.

Table III: Improvement in haemoglobin level (in 64 cases)

Sl. No.	Increase in Haemoglobin level	No. of cases	Percentage
1.	0.1 g to 1.0 g%	26	40.6%
2.	1.1 g to 2.0 g %	15	23.4%
3.	2.1 to 3.0 g %	4	6.2%

Serum Proteins

Increase in the total serum proteins was observed in 32.8 per cent of cases in the range of 0.1 g% to 0.5 g%; while 25 per cent of cases showed increase in the range of 0.6 g% to 1.0 g%. We did not find an increase in serum proteins of more than 1.1g% in any of the cases.

Table IV: Increase in total serum protein (in 64 cases)

Sl. No.	Increase in Haemoglobin level	No. of cases	Percentage
1.	0.1 g to 0.5 g%	21	32.8%
2.	0.6 g to 1.0 g %	16	25.0%
3.	More than 1.1 g %	00	00

DISCUSSION

Malnutrition is a major problem in paediatric practice in India. Several factors are responsible for the same. Liv.52 has been reported to have an anabolic effect leading to improvement in liver function, enhanced appetite and consequent increase in weight (Damle *et al*, 1966). This would indicate that Liv.52 can be an effective and useful adjunct in the management of malnutrition. In the present study, an overall improvement in symptomatology was observed in most of the cases at the end of the therapy. Increase in appetite and consequent increase in weight was noticed in all cases. Sheth *et al* (1960 have shown that Liv.52 has a beneficial effect in cases of anorexia of varied aetiology. Kale *et al* (1966) have demonstrated gain in weight in 54 albino rats, especially during 3rd and 4th week of administration. Shrinivasan and Balwani (1968) have shown increased food consumption and more efficient utilisation with Liv.52.

In the present study, rise in total haemoglobin level occurred in 70.2 per cent cases; while a rise in total serum proteins was observed in 57.8 per cent cases. Dayal *et al* (1970) have also reported weight gain, rise in total haemoglobin percentage and rise in total serum proteins. Khetarpal *et al* (1972) have found marked improvement of appetite and weight gain in cases on Liv.52 besides increase in total serum proteins. Prasad L.S. *et al* (1971) have reported its value as an adjunct in the management of malnutrition. In yet another study (1969) they have reported that Liv.52 increases appetite and helps in assimilation without causing bowel disturbances. Athavale (1966) observed that the weight gain was more notable in under-weight children. These observations are in accordance with our findings in the present study.

CONCLUSION

The present study on Liv.52 shows significant weight gain, increase in total serum proteins and increase in haemoglobin percentage. Improvement in appetite and feeling of well-being makes Liv.52 an ideal adjuvant as a nonhormonal anabolic agent, for increasing the general metabolic status and a feeling of well-being in cases of malnutrition.

SUMMARY

1. A study of the growth promoting effect of Liv.52 was conducted in 67 cases of protein-caloric malnutrition at the Department of Child Health, Kamala Raja Hospital, Gwalior.
2. The cases under study were administered Liv.52 syrup or drops for four weeks.
3. At the end of four weeks, weight gain was observed in 100 per cent cases, increase in haemoglobin level in 70.2 per cent cases and rise in serum proteins in 57.8 per cent cases.
4. There was no untoward or toxic effects with Liv.52 therapy.

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