EVALUATION OF AMINO ACID (ALAMIN-SN) IN BURNS

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KEY WORDS
Nitrogen Balance.

ABSTRACT

20patients of burns in the control group and 20 in the ALAMIN group were enroled in this open labelled clinical trial to determine the effect of amino acid infusion on selected parameters.

It is observed that patients given 2 bottles a day of ALAMIN-SN for a period of 20 days (which provides 6.08 grams Nitrogen and 20.32 grams of protein per day) show significant improvement in Haemoglobin levels, Serum Albumin and reduction in Burn areas. There is s staistically significant improvement in the nitrogen balance in patients administered ALAMIN-SN.

INTRODUCTION

Patients who suffer from burn injury, often are in a negative nitrogen balance, which delays recovery and hampers tissue healing. Such patients require restoration to a state of positive nitrogen

balance for survival, either by natural course (if the injury is less) or by some adjuvant therapy.

MATERIAL AND METHODS

1. Evaluation of the degree of nitrogen balance
2. To compare

a) conventional diet/therapy
b) when supplemented with amino acid (ALAMIN-SN)

The following patiennts were included in the study :

1. Patients between the ages of 20 and 40 years.
2. Patients with 25-40% burns.
3. Patients who could be followed up for a minimum period of 21 days.

The following patients were excluded :

1. Patients with hepatic/renal dysfunction
2. Patients with cardiac/psychiatric disorders
3. Patients of tuberculosis/septicemia/nutritional disorders.

SAMPLE SIZE

Total number of 40 patients were enroled in the study

PATIENT GROUPS

The enroled patients were divided into two equal groups :

1. 20 patients received conventional treatment (hospital diet) and 2 bottles of 10% Dextrose daily.
2. 20 patients received conventional treatment plus 2 bottles of ALAMIN-SN and 2 bottles of 10% Dextrose daily.

Both groups received protocol treatment for periods varying from 21 to 28 days.

TREATMENT

Patients in the conventional therapy group received an oral diet consisting of -

Protein : 55 grams
Carbohydrate : 300 grams
Fats : 10 grams
10% dextrose 2 bottles (1080 cc) daily.

Blood transfusion was administered in cases where the Hb% was 8 gm%.

In most of the cases oral therapy was initiated after about 48 hours after burn injury when the period of hemoconcentration was over and normal kidney function established and when there was no evidence of gastrointestinal disturbances.

In addition, patients received adquate water, minerals and vitamins.

Patients in the ALAMIN-SN group received the same treatment as above except that they received inaddition 2 bottles of ALLAMIN-SN every day.

EVALUATION

Clinical evaluation consisted of daily study of vital functions, body weight, oedema, jaundice and size of ulcer.

The other evaluation parameters used were :

1. 24 hours Urinary Nitrogen output
2. Quality of epithelisation through clinical measurement and photographs.
3. Intake output record.

LABORATORY EXAMINATION

The following laboratory examinations were conducted

Haemogram, SGOT, SGPT, Prealbumin levels on days 3,5,10,15 and 20.

BUN, Creatinine, Albumin, Globulin and 24 hour Urinary Nitrogen output on day, 3,5,7,8,9,10,12,14,15,18,20,24 and 28.

RESULTS

20patients were enroled in each treatment group.

All patients were matched for age, sex, percentage of burns, body weight and haematological and biochemical parameters.

There was no significant diifference in serum Creatinine, BUN, SGOT, SGPT values in the two groups before and after protocol therapy.

Satistically significant differences were found in the patients receiving ALAMIN-SN (2 bottles/day for 20 days) in the following parameters :

1. Haemoglobin
2. Albumin levels
3. Ulcer size

The rise in haemoglobin level in the ALAMIN-SN group before and after therapy is staistically significant. Likewise, the fall in the Haemoglobin level in the control group before and after treatment is also staistically significant. The difference in the haemoglobin levels between the two groups at the end of protocol therapy is staistically highly significant (p, 0.01).

HAEMOGLOBIN

GROUP	Gm% INTIAL	FINAL	SIG
ALAMIN	10.15	12.85	p 0.05
CNTROL	11.92	9.95	p 0.05

SERUM ALBUMIN LEVELS

GROUP	Gm% INITIAL	FINAL	SIG
ALAMIN	2.85	3.4	p 0.05
CONTROL	3.19	2.72	p 0.05

It is observed that although the patients in the ALAMIN-SN group had initially lower albumin levels than the control group, the rise in serum albumin values in the ALAMIN-SN group at the end of 20 days therapy is staistically significant (p 0.05). On the other hand, patients in the control group who had higher albumin values initially had satistically significant lower values at the end of the protocol therapy. The difference in albumin values between the ALAMIN-SN group and the control group was staistically highly significant at the end of 20 days treatment (p 0.01).

PREALBUMIN VALUES

The prealbumin values did not reflect the serum albumin levels in this study. The mean prealbumin values in the control group was 0.05 mg% initially and 0.09 mg% at the end of the study and, 0.09 mg% and 1.1 mg% in the ALAMIN group. The average values of prealbumin in normal age matched healthy Indian individuals is 18 mg%. This is significantly less than the reported average prealbumin values of 30 mg% in western population.

REDUCTION IN ULCER AREA

GROUP	INITIAL	FINAL	SIG
ALAMIN	33.5	11.75	p 0.001
CONTRL	25.9	15.4	p 0.05

The reduction in ulcer area in both groups was statistically significant, it was highly significant in

the ALAMIN-SN Group favouring once again, ALAMIN-SN group.

MEAN 24 HR. URINARY INTROGEN OUTPUT FROM DAY 3-20 GM

GROUP	3	5	7	8	9	10	12	15	18	20
CONTROL	12.5	12.7	12.9	12.1	13.9	13.7	12.4	12.5	11	11
ALAMIN	10.2	11	11.5	11.7	12	11.9	12.4	12.8	12.6	12.6
SIGNIFICANCE	*	*	*	*	*	*				

24hours urinary introgen output is staistically significantly less in the ALAMIN-SN group as compared to the control group on days 5, 7, 8, 9 and 10, while it is staistically significantly less in the control group on day 20.

NITROGEN BALANCE

CONTROL GROUP

The mean daily nitrogen intake in the control group was 8.8 gms and 24 hours urinary nitrogen output ranged from 11.4 to 13.1 grams. The nitrogen balance in the control group was negative and varied from 2.6 to 4.3 grams per day.

ALAMIN GROUP

The mean daily nitrogen intake in the ALAMIN group was 14.88 grams and 24 hours urinary nitrogen output ranged from 10.2 to 12.8 +grams. The nitrogen balance in the ALAMIN group was therefore always positive and varied from 4.6 to 2.0 grams per day for first 40 days. This is statistically significant (p 0.05).

CONCLUSION

It can be concluded that in initial high catabolic state of burns a positive nitrogen balance with all its attendant advantages of accelerated healing, improved haematological status and increased well being was achieved by Alamin group of patients.

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