



Research articles

Dietary management of 30% TBSA Flame burn patient with facial burn with T2DM with HTN in a tertiary care hospital

Rupali Das, Puspanjali Mishra*, Jatindra Nath Mohanty

IMS and Sum hospital, SOA deemed to be University, Bhubaneswar, Odisha, India

ABSTRACT

In developing countries like India, burn injury is as yet a significant and regular reason for mortality and morbidity. Nutrition therapy aims to provide satisfactory and early nourishment to patients experiencing burn injuries. Metabolic help during increased inflammatory state is essential to make sure adequate treatment of burn patients. Nutritional sustain is a fundamental and indispensable part of consume care that requires an aggressive multifaceted approach. Impeded injury, dysfunction of multiple organs, increased chances of infection, and death are largely prevented by an adequate nutrition care along with proper wound management. In this study we detailed a patient having 30% TBSA flame burn with facial burn with T2DM & HTN and observed all require parameter in dietary management. The patient was suggested with high protein, moderate calorie, and moderate fat diet. As the sugar level of the patient was high i.e. ranges between 250-350 mg/dl, 5 ml Insulin was given to him at 3hr interval. With time, along with regular therapeutic diet the patient was took curd, paneer, chena etc. Albumin, globulin, total protein level of the patient was decreased so he also took coconut water, fruit juices (sugar free), milk, vegetable soups etc. As the sugar level of the patient was high i.e. ranges between 150-250 mg/dl, 3ml Insulin was given to him at 6hr interval. The wounds of the patient were started healing and he was active & fresh. The patient undertook a dietary counseling for 17 days and dietary modification was done according to the patient condition.

Keywords: Dietary management, TBSA, T2DM with HTN, Insulin.

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Correspondence: Puspanjali Mishra*, ✉puspanjalimishra@soa.ac.in

IMS and Sum hospital, SOA deemed to be University, Bhubaneswar, Odisha, India

INTRODUCTION

The treatment conventions are proof put together depending with respect to the clinical and research facility considers. Nourishing help is characterized as the arrangement of supplements and any essential adjunctive remedial specialists to improve or keep up the wholesome status of the patient for ordinary injury mending. Dietary help is controlled into the stomach or small digestive tract as well as by intravenous imbue [1]. A large portion of the consume casualties with lesser level of consumes can be continued in the outpatient office. Fewer than 10% of the patients with consume wounds need in-patient treatment. Not many patients just require serious consideration treatment. Patients with significant consumes are those with over 20% all out body surface territory ignite with or without inhalation injury.

Patients with burns that involve 20 to 40 percent of TBSA may not be able to consume sufficient calories to maintain LBM and weight [2]. Similarly, patients who require extensive surgery, develop complications of their injury, or have a known nutritional deficiency at the time of admission may not consume

adequate calories. Nutrition support following burn injury is unlikely to redress preexisting conditions but is intended to treat the metabolic demands incurred as a result of the burn injury [3]. Our aim here is to maintain the nutrition taking all the medical parameter in to account like diet what to be kept away from, and food varieties to be incorporated in the nutrition.

MATERIAL AND METHOD

This is an observational analysis carried out at Institute of Medical Sciences and Sum hospital, Bhubaneswar. The patient history was given below

Prognosis

The patient undertook a dietary counselling for 17 days and dietary modification was done according to the patient condition. The patient was taking diet from the therapeutic kitchen and was recovered. The patient had improvement in the biochemical parameters and also in his behaviour, so the prognosis is good.

Age	:57
Sex	: Male
Date of Birth	: 06/02/21

Date & Time of Admission : 06/02/21
 Date of Discharge : 21/02/21
 Height : 169 c.m.,
 Weight : 71 kg.
 (at the time admission), 69k.g(at the time of discharge)
 BMI : 24.9 kg/m. Square
 Chief Complaints : Flame burn in facial part
 Parts Affected : Face, Neck, Leg, Hand

History of Present illness: Patient presented with A/H/O flame burn on 06/02/21 at 12:30 at home haija Khurdha patient accidentally caught fire over clothes then over body to the mishap, patient then initially treated at CHC haija and now reported to the hospital for further care and management.

Past Disease: Type II DM, HTN

Previous operation: No, Family History: No

Diagnosis

30% TBSA Flame burn with facial burn with T2DM with HTN

Diet

High protein, moderate calorie, moderate fat is recommended.

OBSERVATION AND DISCUSSION

Patient was admitted at Burn unit with 30% TBSA flame burn with facial burn with T2DM & HTN. He was first kept in NPO and then he was given 500ml/ hr fluid for 1st 8 hr and 250 ml/hr fluid for 2nd 16 hr. He was suggested with high protein, moderate calorie, and moderate fat diet & fibre rich He was taken food from the therapeutic kitchen of the hospital. First high protein low calorie, moderate fat liquid diet was given to patient through RTF. Extra protein supplement i.e. Ensure protein powder (4 scoops) for 3 times/day was given to him. As the sugar level of the patient was high i.e. ranges between 250-350 mg/dl, 5 ml Insulin was given to him at 3hr interval.

The patient was not active. The diet was modified to high protein, high calorie, moderate fat soft diet & also was took curd, paneer, chena as on dated 09/02/21 his albumin, globulin, total protein level of the patient was decreased to 2.91, 2.03, 4.94 respectively. Then he was given fluids up to 3-4 days. And took coconut water, fruit juices (sugar free), milk, vegetable soups etc. As the sugar level of the patient was high i.e. ranges between 150-250 mg/dl, 3ml Insulin was given to him at 6hr interval. The wounds of the patient were started healing and he was active & fresh. High protein moderate calorie, moderate fat diet normal diet of was given to the patient. On dated 13/02/21 with the regular therapeutic diet and suggested to took extra milk, egg, iron rich foods like beet root juice, lemon coriander soup, green leafy vegetables, Vitamin C rich foods like orange, lemon, guava, etc. as the albumin, total protein,

lymphocyte, Hb level of the patient was decreased to 2.26, 4.81, 0.9, 10.9 respectively. The globulin was increased to 2.8 which is normal. The wounds of the patient were dried. The patient was completely fine and active. He was shifted to Plastic surgery ward too.

Normal diabetic diet was given to him 2-3 days. The patient condition was better than before his wounds were completely dried. The patient was ready to discharge. On the day of discharge, he and his family members were made understood about his diet i.e. what to avoid & which foods to be taken and also was suggested to take high protein and low calorie moderate fat diet, and also suggested to took iron rich foods as the Hb level of the patient was low i.e. 11.7.

Table 1: Biochemical Parameters

Parameters	Value at the time admission	Value at the time of discharge	Normal range
Hb	13	11.7	13.0-17.0
TWBC	10.71	9.57	4-10
RBC	4.45	3.98	4.5-5.9
PCV	38.1	33.5	36.0-52.0
Plate late Count	110	244	150-400
Lymphocytes	12.8	18.7	20-40
Albumin	4.14	3.1	3.3-5.2
Globulin	1.98	2.8	2.5-3.5
Total Protein	6.12	5.9	6.0-8.3
Urea	31	34	13-45
Creatinine	1.27	0.8	0.5-1.5
Sodium	139	133	135-145
Potassium	3.9	4.4	3.5-5.0
Chloride	100	98	96-115

Table 2: Water output and input of the patient

DATE	INPUT	OUTPUT
06/02/21	1700ml	1200ml
07/02/21	1150ml	1250ml
08/02/21	1200ml	900ml
09/02/21	900ml	500ml
10/02/21	900ml	700ml
11/02/21	650ml	800ml
12/02/21	900ml	800ml
13/02/21	900ml	800ml
14/02/21	1450ml	1300ml
15/02/21	950ml	800ml
16/02/21	1000ml	850ml
17/02/21	950ml	1050ml
18/02/21	550ml	740ml
19/02/21	800ml	850ml
20/02/21	2000ml	1100ml
21/02/21	750ml	950ml

Figure. 1: Diabetic graph of the patient

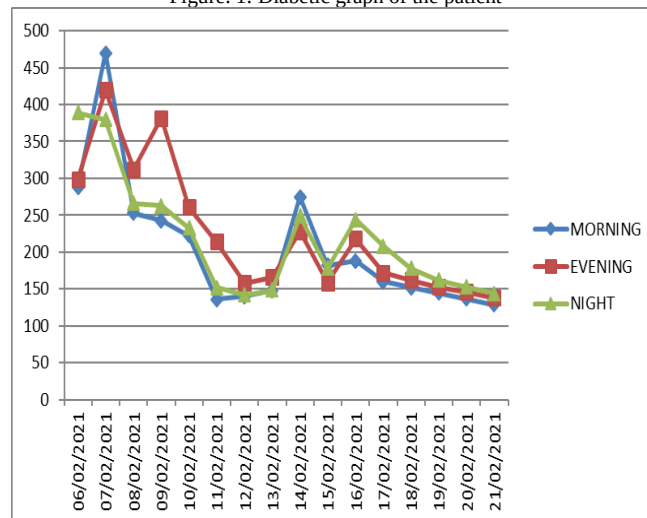


Figure 2: Albumin, globulin, total protein graph of the patient

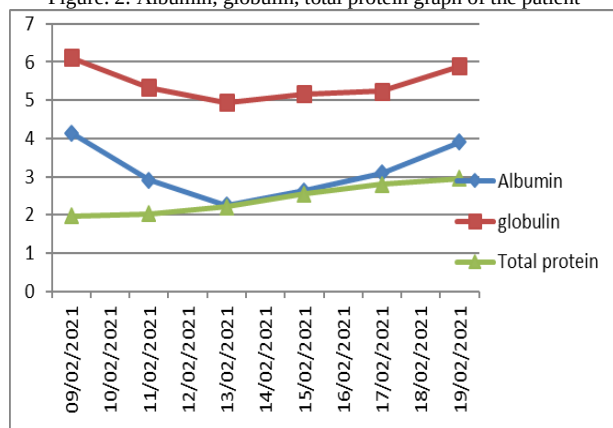


Figure 3: Hemoglobin graph of the patient

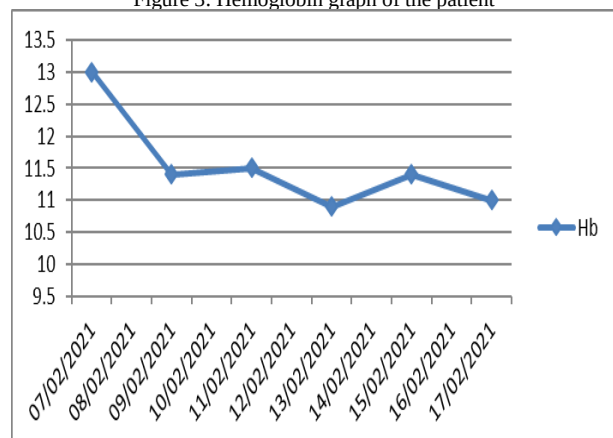


Table 3: Food to include and avoid

Foods to include	Foods to avoid
High protein foods like meat, fish eggs, legumes, milk, yogurt, cheese, 7 nuts	Sugary beverages, deserts, candy,
Vitamin C rich foods like orange, lemon, all citrus fruits, pepper etc	fatty meats, whole-fat dairy and
Vitamin E rich food like nuts, seeds, fruits & vegetables	white breads or crackers.
Fluid-3.5-4 latter-day	Flesh food like salty fish, crab,
	Fried food, junk food etc

Table 4: Dietary management

Date	Diet recommended
07/02/21-08/02/21	RTF- High protein, High calorie, moderate fat diet, fibre rich Calorie- 1800 kcal, Carbohydrate- 200 gm, Protein-80-100gm, Fat- 22gm
09/02/21-11/02/21	Soft diet-High protein, moderate calorie, moderate fat diet Calorie-20000 kcal, Carbohydrate-270gm, Protein-80-110gm, Fat- 30gm
11/02/21-19/02/21	Normal diet- High protein, moderate calorie, moderate fat diet Calorie-2200 kcal, Carbohydrate-280gm, Protein-80-120gm, Fat- 35gm
19/02/21-21/02/21	Normal Diabetic diet, Calorie-2400 kcal, Carbohydrate-270gm Protein-60-70gm, Fat- 25gm

Table 5: Sample Menu (Normal high protein diet)

MEAL	MENU
Early morning	tea(1cup), biscuit(2-3nos)
Breakfast	/Dalia upma/oats upma-(1cup), sambar-(1cup)
Mid-morning	Corn soup/vegetable soup/milk shake/ badam shake-(1cup)/ boiled egg (2)
Lunch	Roti (2-3 pcs), dal /mix vegetable curry/parwel curry/santula/paneer curry- (1cup), baingan bharta/ fry/mix veggie fry/krela fry/grated cucumber raita(1cup) egg poach/. Chicken -3 pcs
Evening snacks	Brown bread sandwich (2pcs)/Suji halwa(sugar-free)/d, vegetable soup/corn soup-(1cup)/ boiled chana with cucumber and tomato
Dinner	Roti(2-3pcs), santula/veg curry / fry/mix veggie fry/Soyabean curry / tadka (1 glass of milk with Resource protein powder -2 -3 scoop /day

DISCUSSION

Providing nutrition support is essential in the effective administration of the burn patient.^[4,5] The security and viability of starting enteral feedings in burn patients has been set up, similar to a pattern toward diminished disease rates and diminished calorie shortfalls^[6,7,8]; however, the ideal planning of starting nourishment support is discussed. Early enteral nourishment may assist with weakening the hyper metabolic reaction to consume injury. In a meta-investigation, arrangement of early nourishment support was not related with any unfavorable impact.^[9] Comparative lengths of clinic stay, disease, and mortality were found for right on time (inside 24 hours) contrasted and late (following 24 hours) inception of enteral nourishment. Subsequently, in the Haemodynamically steady persistent with moderate-to-extreme consume injury (>20 percent absolute body surface region [TBSA]), we recommend starting nourishment support as enteral taking care of as ahead of schedule as could really be expected.

Guidelines from the Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN) support untimely enteral nourishment inception, inside four to six hours of injury for all basically sick consume patients, if possible.^[10] The proposals from European Society for Clinical Nutrition and Metabolism (ESPEN) prescribe early enteral nourishment for moderate-to-serious consume patients who won't or can't start oral sustenance inside 6 to 12 hours of injury.^[11] Meeting with a dietitian experienced in the dietary consideration of consume patients can demonstrate particularly supportive in all parts of the healthful consideration of these patients.

For Haemodynamically unstable patients, nutrition support ought to be begun when the perfusion of the intestine is believed to be sufficient. Care should be taken when conveying full feeds in the setting of marked hemodynamic instability or with high vasopressor requirements because of the danger of causing non-occlusive mesenteric ischemia. Regardless of this, the utilization of enteral sustenance in patients on low or diminishing portions of vasopressors can be securely refined.^[11]

CONCLUSION

Seriously burned patients have significant nourishing prerequisites auxiliary to the delayed post-burn hyper metabolic, hyper catabolic response. Enteral nutritional support ought to be started ahead of schedule to enhance complete burn care and decrease long-term morbidity. Early enteral feeding within the first 12 hours after injury is an integral part of initial resuscitation of burn management. Nutritional necessity is higher than those of other critically sick patients.

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