

Case Report

Nutritional Management of a Case with Preeclampsia

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Abstract

Preeclampsia is a very fatal condition if not addressed in a timely manner, as there may be multiple organ failure, fetal death, and even the patient themselves is at risk of loss of life. Therefore, the present case was selected to study its nutritional management. A 25-year-old female was admitted with complaints of shortness of breath, muscle twitching, fever, anasarca and high blood pressure. She was diagnosed to have pre-eclampsia by clinicians, and her medical treatment was started as per the diagnosis and biochemical reports. She was assessed by the dietitian for nutritional status and was found malnourished in terms of weight, anemia and food intake. She was started on a liquid diet initially and counselled and motivated by the dietitians to increase her food intake, a gradual improvement was seen in her weight, biochemical reports, clinical signs and food intake at the time of discharge. Therefore, it can be concluded that timely assessment and intervention definitely improve patients' health outcome in terms of improved weight, functional status, strength, normal biochemical profile, clinical signs & symptoms, food intake and overall quality of life.

Keywords: Preeclampsia, Nutritional management, Nutritional status, High risk pregnancy, Anemia

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Introduction

Preeclampsia is defined as a pregnancy specific syndrome observed after the twentieth week of pregnancy with systolic blood pressure of >140 mmHg or diastolic blood pressure >90 mmHg accompanied by significant proteinuria (>0.3 g).^[1] Gestational hypertension is a prominent sign of preeclampsia that is defined as elevation of blood pressure first time after mid pregnancy and is distinguished from preeclampsia by the absence of proteinuria.^[2]

Role of nutrition in preeclampsia: Potassium helps to maintain electrolytes and fluid balance in the body during pregnancy. In preeclampsia, fluid retention or edema is one of the common symptoms. Omega-3 (n-3) fatty acids, as found in marine fats, have been suggested to be important in the prevention of preeclampsia. Vitamin C, E & carotenoids are important for prevention of preeclampsia. Magnesium is used to prevent seizures in women with preeclampsia.^[3]

Case Profile

A 25 years old Hindu female residing in urban area, who belonged to lower socio - economic group, was admitted to the hospital with complaints of seven months amenorrhea with fever, twitching of facial muscles, neck stiffness.

Past medical history: Abnormal fetal movements

Family history: None

Final medical diagnosis was preeclampsia with acute febrile illness, encephalitis and thrombocytopenia.

Nutrition Care Process

It includes four steps –

1. Nutritional assessment that is done with the help of Subjective Global Assessment (SGA) that is based on anthropometric measurements, biochemical investigations, clinical signs and symptoms and history of diet intake.
 2. Nutritional diagnosis; It is written in the form of PES statement, i.e. Problem, etiology and symptoms
 3. Nutrition intervention or the complete entire day's diet plan to fulfil patient's nutritional needs.
 4. Monitoring and evaluation: It is also a very important step to analyze the intake of the prescribed diet and to find out the causes of gap (if any)
1. **Nutritional assessment:** For this, anthropometric measurements were taken as shown below in Table 1–

Measurements	Values
Weight at 7 months pregnancy	37 Kg
Height	150 cm
Body mass index as per pregnancy weight	14.22 kg/m ²
Gestational weight gain	5 kg in 7 months that should be ideally 8.5 kg
Target body weight	57 kg
MUAC	19 cm
Waist circumference	62 cm
Hip circumference	75 cm
W/H Ratio	0.82 cm
BMR/ REE (ICMR 1989)	1181.5 Kcal
Physical activity level (ICMR 2020)	1.60

Table 1. Anthropometric measurements of the patients at the time of admission

Biochemical assessment: The patient underwent blood investigations, including complete blood count (CBC), random blood sugar (RBS), electrolytes, liver function test (LFT), renal function test (RFT), thyroid-stimulating hormone

(TSH), urine routine etc. Some of the impaired parameters were as shown below -

Haemoglobin 8.8 g/dl

SGOT 72 U/L

Bilirubin indirect 1.2 mg/dl

Based on blood investigations, clinical signs & vitals, the following treatment was started by clinicians as mentioned in Table 2 –

Medication	Dose	Mechanism of action
Inj PANTOP	40 g	Antacid
Inj MONOCEF	2 mg	Antibiotic
Inj LEVIPIL	500 mg	Anti-Epileptic
Inj EMSET	4 mg	Antiemetic
Inj OPTINEURONE	1 amp	Vit B12
Inj VANCOMYCIN	7 g	Antibacterial
Inj DESONA	2 cc	Steroid
Inj ARTESUNATE	120 mg	Antibiotic
Inj CALCIUM GLUCONATE	10 mg	Antidots
Inj LOPEZ	2 cc	Antiepileptic
Inj LACOSAMIDE	100 mg	Antiepileptic
Inj ACICLOVIR	750 mg	Antiviral
Inj HEPRIIN	5000 IV	Anticoagulant
Inj HYDROCORTISONE	50 mg	Corticosteroids
Inj MEROPENEM	1 g	Antibiotic

Table 2. Medical treatment prescribed to the patient

Home diet recall: Simultaneously, the patient's 24-hour home diet recall was recorded by the clinical dietitian to find out nutrient adequacy in the existing diet pattern. The patient's 24-hour home diet recall showed an intake of energy (1293 Kcal), protein (37.11 g), carbohydrate (167.84 g), fat (31 g), empty calories 175 Kcal & fluid intake as 1.5 L, which didn't match even half of her daily nutrient requirements. Intake of other nutrients of concern was also found to be significantly lower than her nutrient needs such as calcium 546 mg, Iron 10.83 mg, sodium 138.5 mg, potassium 2321 mg, fibre 26.95 g.^[4]

Nutritional Diagnosis: Patient was found severely malnourished due to nutrients

deficiency, poor appetite as evidenced by severe underweight and SGA grading C.

Nutrient Intervention: Diet prescribed during hospitalization: As patient's nutrient needs were high, but on one hand she was having high blood pressure and was suffering with nausea, loss of appetite, she was prescribed liquid diet in combination with soft diet, but as she was not able to eat orally well, therefore, she was shifted on ryle's tube feed & remain on that feed for 3 days. Later on she was progressively shifted to orally liquid diet to high protein full diet.

Medical Nutrition Therapy: Patient was recommended with a high calorie high protein low salt normal diet and nutrient needs were as shown in the following Table 3 –

Nutrient	Calculated requirement	Formula
Energy (Kcal)	2240	Ideal body weight x 35 x stress factor +350
Protein (g)	71.6	Ideal body weight x 1.2 +17.6
Carbohydrate (g)	336	60% of total calories
Fat (g)	62.2	25%
Sodium (mg)	<2000	
Potassium (mg)	3500	
Fluid (ml)	1575 ml	Ideal body weight x 35
NNC (Kcal)	1953	

Cal: N ₂ ratio	190:1	
Consistency & frequency of meal	Progressive diet including 3 major and 3 minor meals	

Table 3. Nutrient requirements of the patient

Goals of nutritional management	Exchange list of prescribed diet providing 2145 Kcal & 86 g protein
Short term goals	Food group - Exchanges
- To control elevated blood pressure	Cereals – 7
- To maintain lean body mass	Pulses – 2
- To improve platelet count	Vegetables – 4
- To treat symptoms & prevent complications	Fruits – 2
Long term goals	Milk products – 6
- To prevent macro and micronutrient deficiency	Fat – 4
- To gain weight	Sugar – 4
- To enhance overall quality of life	These exchanges were divided into whole day's menu as shown below in Table 4–

Meal	Menu	Quantity
Early morning	Tea	1 cup 100 ml
	Biscuits	2
Breakfast	Milk	200 ml
	Sandwich 2	200 g
Midmorning	Paneer	50 g
Lunch	Salad	100 g
	Chapati	4
	Rice	100 g/ 1 medium bowl
	Dal	100 g/ 1 medium bowl
	Veg	100 g/ 1 medium bowl
	Curd	100 g/ 1 medium bowl
Evening tea	Tea	1 cup 100 ml
	Biscuits	2
Dinner	Salad	100 g
	Chapati	4
	Rice	100 g/ 1 medium bowl
	Dal	100 g/ 1 medium bowl
	Veg	100 g/ 1 medium bowl
	Curd	100 g/ 1 medium bowl

Table 4. Prescribed diet for the patient at the time of discharge

Dietary recommendations

The patient was counselled–

1. To consume high-calorie food such as ghee, butter, dry fruits, halwa etc.
2. To consume high-protein foods like milk, kheer, curd, egg, paneer, mawa and legumes.
3. To reduce dietary sodium intake to 2 -3 g salt /day.
4. To drink plenty of water throughout the day.
5. To eat iron-rich foods like beetroot, khajoor, pomegranate with vitamin C-rich foods such as amla, lemon, orange, kiwi etc.
6. To avoid high-salt foods such as chips, papad, chutney, baking powder, pickles etc.

7. To consume high-carbohydrate fruits such as mango, cheeku, grapes and banana etc.

Patient's 3-day hospital diet intake was converted into nutrient intake and was analysed to find out dietary adequacy in fulfilling nutrient needs. The following Table 5 shows the 3 - day nutrient intake during hospitalisation –

Monitoring & Evaluation

	Energy (Kcal)	Protein (g)	Carbohydrate (g)	Fat (g)	Sodium (mg)	Potassium (mg)
Day 1	1273.76	58.98	204.37	21.36	1996	2023
Day 2	1328.9	55.52	104.93	68.93	2055	1054
Day 3	1781.32	74.3	304.4	25.79	1877	2575.74
Total	4383.98	188.8	613.7	116.08	5928	5652.74
Average	1627	62.93	204.5	38.69	1976	1884
Percentage	72.63	87.89	60.86	62.2	123.5	53.52

Table 5. Average nutrient intake during hospitalisation in comparison to requirements

It was evident from table 5 that patient's nutrient intake was quite satisfactory during hospitalization as it ranged between 53 – 87% of the requirements. In fact, there was a need to reduce salt & other high sodium foods intake as her sodium intake was 23% higher than the requirements. Therefore, the patient was prescribed a discharge diet on her calculated requirements (2240 Kcal and 70 g protein) and was asked to come for follow-up after 1 month or before if there is any problem.

Patient's monitoring at the time of follow up was done on the basis of change in weight, blood pressure, haemoglobin levels, blood sugar level, oedema, proteinuria, anorexia, decreased or increased food intake and diet compliance etc.

Conclusion

Therefore, it can be concluded that timely assessment and intervention definitely improve patient's health outcome in terms of improved weight, functional status, strength, normal biochemical profile, clinical signs & symptoms, food intake and overall quality of life.

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