

## Protein Energy Malnutrition Severe Acute Malnutrition, LRTI with KOCH'S

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Received: March 08, 2018; Published: April 21, 2018

## Abstract

The few rare cases found in the developed world is result of ignorance of the nutritional needs of children, particularly in cases of milk allergy. If under nutrition occurs during pregnancy, or before two years of age, it may result in permanent problems with physical and mental development. Extreme undernourishment, known as starvations that include; a short height, thin body, very poor energy levels, and swollen legs and abdomen. Often get infections, frequently cold. 1 yr 8 months old male child 3<sup>rd</sup> birth by order born of NCM admitted with case of cough, fever, and vomiting, poor appetite and weight loss since last two months. An episode of pneumonia at the age of 6 months, following recurrent respiratory tract infections. Only on breast milk and cow's milk 3 - 4 times a day, poor weight gain since six months of age. Patient was started on F75 Diet I/v/o SAM which child tolerated well, diet progressed to F100 Diet and F120 Diet with daily monitoring of weight. Iron and multivitamin drops were also started, Vitamin A- 2 lakh IU given. Patient's gradually improved, air entry improved, patient was gaining weight, pedal oedema decreased. Hemodynamically stable, hence being discharged on oral medication. A large percentage of children that suffer from PEM also have other co-morbid conditions, because of delayed weaning.

**Keywords:** Malnutrition; Infection; Antibiotics; Pneumonia; Diarrhoea; Tuberculosis; F75 Diet

## Introduction

Severe acute malnutrition (SAM) is associated with increased severity of common infectious diseases, and death amongst children with SAM is almost always as a result of infection. The diagnosis and management of infection are often different in malnourished versus well-nourished children. Protein - energy malnutrition (PEM) refers to a form of malnutrition which is defined as a range of pathological conditions arising from coincident lack of protein and or energy in varying proportions PEM is fairly common worldwide in both children and adults and accounts for 6 million deaths annually.

## Case Report

We report one such case in hospital as 1 yr 8 months old male, weight 3 kg child 3<sup>rd</sup> birth by order born of NCM admitted with Severe Acute Malnutrition, Bronchitis, Chronic LRTI with KOCH'S, with supportive lung disease. Patient presented with cough, fever and vomiting, poor appetite weight loss since last two months.

The child had an episode of pneumonia at the age of 6 months for which he was hospitalised and received parenteral antibiotics. Following that the child has had recurrent respiratory tract infections. Child was taking homeopathic medications for above ailments but no relief from symptoms. The child is accepting only

breast milk and few spoons of cow's milk 3 - 4 times a day; poor weight gain since six months of age. Child has poor activity since last two months. O<sub>2</sub> by NP @ 2 litre/min was started as SPO<sub>2</sub> was 90% on RA, after securing an iv line and sending required investigations patient was started on iv antibiotics (Inj. Amoxicillin + Clavulanate), Syp. Azithromycin, Syp. Cefixime, maintenance I. V fluids, nebulisation with Levosalbutamol and symptomatic treatment. Blood culture was sent which was negative. Sputum culture was sent which was s/o *Klebsiella pneumoniae*. HRCT Chest showed sub lobar consolidation. Based on physical and clinical signs though AFB and Mantoux was negative decision was taken to start AKT. I/v/o, CT chest s/o tuberculosis. Patient was Afebrile on admission, had 2 fever spikes on day 4, 2 spikes on day 8, 3 spikes on day 9 and 1 spike on day 10 of admission.

Patient was started on F75 Diet i/v/o SAM which child tolerated well and gradually diet progressed to F100 Diet and F120 Diet with daily monitoring of weight. Iron and multivitamin drops were also started, Vitamin A- 2 lakh IU given. Chest physiotherapy was done twice daily, chest x-ray was repeated which showed improvement. Patient's symptoms gradually improved, air entry improved, occasional creps were positive, patient was gaining weight, pedal oedema decreased. Child is tolerating feeds well orally, is passing urine adequately, afebrile and hemodynamically stable, hence being discharged on oral medication.

## Discussion

Protein - energy malnutrition affects children the most because they have less protein intake. The most common co-morbidities are diarrhoea. However, a variety of other conditions have been observed with PEM, including severe anaemia, bronchopneumonia, tuberculosis rickets, and keratomalacia. These co-morbidities tax already malnourished children and may prolong hospital stays initially for PEM and may increase the likelihood of death. High - resolution computed tomography (HRCT) is a type of computed tomography (CT) with specific techniques to enhance image resolution. It is used in the diagnosis of various health problems, though most commonly for lung disease, by assessing the lung parenchyma [1-6].

**Diet Counselling:** Nutritional Course by Diet Department.

**Reference by Doctor:** SOS to start AKT in evening, Supplement: F75 -80 kcal/kg/d, Improve oral intake, 2g protein/kg/d. According to the WHO protocol and requirement of the child as per the present medical condition, a hospital diet chart was made by the Diet team.

Timing	Menu	Quantity
Breakfast	Milk*	50 ml
	Non-fried snack	¼ bowl
	Egg white	1 no
Mid-Morning	Biscuit	1
Lunch	Bl. Khichadi**	¾ wati
	Mashed veg (Potato)	¾ wati
	Dal**	¾ wati
	Curd	¾ wati
	Banana	1
Tea-Time	Tea	1 cup
	Biscuit	1
	Non-fried snack	¾ serving
Dinner	Same as Lunch	
Bed-time	Milk*	1 cup
	*Skim milk powder	2 tsp
	**Ghee	2 tsp
	Cheese	1 cube

## Medications Administered

Sr. No	Drug Name	Sr. No	Drug Name
1	T.Rifa - 1-6 Kid Forte	11	Syp. Ibugesic
2	T.Pyzina	12	Syp Coscopin.
3	T.Combutol	13	Viscyneral drop
4	T.Althrocin	14	Tonoferon drop.
5	T.Lanzol JR	15	Practin drop.
6	Vitamin A chewable tablet	16	Neb with levolin
7	Syp.Bethadoxin.	17	Inj. Augmentin
8	Syp Crocin	18	Inj. Emeset
9	Syp. Azee	19	IVF DNS
10	Syp. Zifi		

## Condition at Discharge

Patient was afebrile, had No Respiratory Distress, SPO2 98% on RA. Weight on discharge - 5.82 kg.

## Conclusion

High Calorie, High protein diet chart was given with 150 Kcal/kg body weight/day and 3 gm/kg body weight/day. The parents were also educated about the various home-made weaning foods for the child.

## Funding Resource

None.

## Conflict of Interest

We affirm that we do not have conflict of interest. We verify that all the authors has access to data and role in writing manuscript.

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**Volume 2 Issue 5 May 2018**

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