APPROACH TOWARDS MANAGEMENT OF SEVERE ACUTE MALNUTRITION BY AYURVEDA REGIMEN- A CASE STUDY

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ABSTRACT

Childhood undernutrition is an underlying cause in an estimated 45% of all deaths among under-5 children. Such children very often suffer from complications of malnutrition such as diarrhea, acute respiratory infections, malaria and skin infections if not managed well. In this case study an 4 year old child presented with severe to acute malnutrition (SAM).The SAM management protocol consists of initial management of acute consequences and later part includes dietary management with starter diet (F-75) & catch up diet (F-100). But usually fewer efforts are takento build proper appetite to help body systems to digest heavy carbohydrates and protein containing feeds. In *Ayurveda Samhitas*, *Karshya, Phakka, Balshosha* and *Parigarbhika* these diseases are mentioned which can be correlated with Malnutrition. The main contributing factor in all these diseases is *Agni*. *Agni* or digestive fire is the main transforming unit of body. Consequently, hampered *Agni* results in malnutrition. The treatment modality of these diseases is mainly based on *Deepana Pachana*, *Srotoshodhana*, *Bhrimhana*. The case was managed with help of *Ayurveda* regimen resulting *Agni vardhan* & *brimhana karya*.

KEYWORDS: Severe Acute Malnutrition (SAM), *Ayurveda, Karshya Agni, Brimhana.*

INTRODUCTION

"A healthy & brilliant child is National wealth". Tomorrows nation is built on today's healthy

child! Childhood undernutrition is an underlying cause in an estimated 45% of all deaths among under-5 children. According to the National Family Health and Survey (NFHS) 4, carried out in 2015-2016, 36% India's children under the age of five are underweight, 38% are stunted and 21% are wasted.[1] Malnutrition refers to deficiencies, excesses or imbalance in person's intake of energy and/or nutrients.[2] Thus, malnutrition connects both undernutrition as well as over nutrition. Previous classification of under nutrition was as marasmus, kwashiorkor and marasmic kwashiorkor. But currently, considering the clinical and management aspects of under nutrition it is classified as Moderate Acute Malnutrition (MAM) & Severe Acute Malnutrition (SAM).

Severe Acute Malnutrition is defined as very low weight for height (Z-score below -3SD of the median WHO child growth standards) or a mid upper arm circumference < 11.5 cm or by thepresence of nutritional edema.[3]

Body physiology becomes abnormal in SAM due to the phenomenon of reductive adaptation. The systems slow down and do less in order to allow survival on limited calories. This slowing down is known as *reductive adaptation. Children with Severe Acute Malnutrition are at risk of death from hypothermia, hypoglycemia, fluid overload, electrolyte imbalance, dehydration & infections.

Lack of sufficient food intake leads to *Khuposhanajanya Vyadhis*.
According to *Ayurveda* diseases included in Malnutrition are *Karshya[4], Phakka[5], Balshosha[6]* and *Parigarbhika.*[7] The treatment modality of *Balshosha* is mainly based on *Deepana Pachana*, *Srotoshodhana*, *Bhrimhana* and symptomatic management. *Agni* or digestive fire is the main transforming unit of body. Consequently, hampered *Agni* results in malnutrition.

Modern medicinal management of SAM is classified into two parts as.
1. Facility based management
2. Community /Home based management

Though the appetite assessment is done meticulously in above protocol but the major lacuna involved is, that there is no appetite enhancer available in mainstream medicinal system with its established safety and efficacy in malnourished children. Whereas *Ayurveda* contributes to solution. *Ayurveda* suggests *Agni vardhana*, *Brihana kalpas*.

CASE REPORT

A 4 year old male child was brought by his parents to Balrog OPD of Govt. Ayurvedic CollegeOsmanabad. The child was presented with following complaints.

Not gaining weight.................Since 5 months

Not gaining height...................Since 5 months

Loss of appetite…....................Since 1 month

Irritability….............Since 15 days

Generalised weakness….........since 15 days

H/O present illness

This 4 yr old male child brought by his parents with complaints of not gaining weight, height, Loss of appetite, irritability, generalized weakness. He received treatment but didn't get satisfactory result. Hence he was brought to Balrog opd for further management.

H/O past illness

No H/O any major illness.

No significant H/O previous hospitalization or similar illness in family.

H/O Immunization- All vaccines received upto age as per schedule.

BCG Mark present

Birth History

Prenatal- No hx of Oligo/Poly/PIH/Diabetes Perinatal-FTND BCIAB having B.Wt -2.3kg.

Postnatal - Not significant.

Dietary history

Exclusive Breast feeding for 6 months, at 6 months of age complementary feeding was initiatedbut was insufficient in quality & quantity.

Current calorie intake=867 cal energy against 1200 cal need /RDA (150cal/kg/day)Current Protein intake= 7.1 gm against 10.6 gm need /RDA (1.3/kg/day).

EXAMINATION

Anthropometry- Height 76 cm, Weight=7.9kg, HC -44cm, CC-43cm, MAC-11cm**General examination**-GC-moderate T-97.6 F BP-110/80 mm of Hg.

DIAGNOSIS

Present weight = 7.9kg Present height=76cm Weight for height=<-1 SD

MAC =11cm

Thus, Severe Acute Malnutrition

Investigations-

CBC= Hb-8.5 gm%.

WBC-9900/cummRBC-3.78x10"mLMCHC-31.60 g/dl.

Sr. Total protein-6.1 gm/dlSGOT-50.0U/L.

SGPT-30 IU/L.

Sr. Creatinine-0.6 gm%Blood urea- 30mg/dl.

BSL (Random)-102.0 mg%.

Urine (Routine) - Albumin-nil; Sugar-Nil (Microscopic)-Pus cells-Nil.

MATERIALS AND METHODOLOGY

This case was managed with *Ayurveda* regimen resulting *Agnivardhana*, *Amapachana* &

Brihana karya along with dietary management. The treatment principle were-

a) *Agnideepana* and *Aama pachana, Brimhana*

b) Dietary management as suggested in Maharashtra Government Nutrition Protocol Total
    duration of case study was of 28 days.

This management consisted of

Sr.no.	Principle	Drugs	No. of days
1.	*Deepana & Pachana*	*Lashunadi vati*	07
2.	*Balya & Brimhania*	*Kumarkalyana rasa + Guduchyadi churna*	21
3.	*Ahara*	RUTF + other diet	28

1. *Lashunadi vati* 1 tab (125mg) BD for 7 days with plain water as *Anupana.*

2. Ayurvedic regimen- *Kumarkalyana rasa*[8] *5gm + guduchi satva 7gm + musta churna
    5gm + Yashtimadhu Churna5gm+Shatavari churna 5gm +Ashwangandha churna 5gm+
    Kraunchbij churna 7gm* Divided in 28 equal parts 500mg BD with *Madhu* as *Anupana.*

3. Ready to use therauptic feed (RUTF)[9]

ASSESMENT CRITERIA

1. Anthropometry.

2. SNAQ.

3. Total Calorie intake.

OBSERVATIONS

Simplified Nutritional Appetite Questionnaire (SNAQ)[11]

SNAQ score <14 or =14 indicates significant risk of at least 5% weight loss within six months.

1. **My appetite is**	2. **Food tastes**
a. Very poor	a. Very bad
b. Poor	b. Bad
c. Average	c. Average
d. Good	d. Good
e. Very	e. Very good
3. **When I eat**	4. **Normally I eat**
a. I feel full after eatingonly a few mouthfuls	a. Less than one meal aday
b. I feel full after eating about a third of a meal	b. One meal a day
c. I feel full after eatingover half a meal	c. Two meal a day
d. I feel full after eatingmost of the meal	d. Three meal a day
e. I hardly ever feel full	e. More than three meala day

Assessment Criteria

CRITERIA	1st Day	14th Day	28th Day
Height	76cm	76.5cm	77.2cm
Weight	7.9kg	8.2kg	8.7kg
Head Circumference	44cm	44.2cm	44.4cm
Chest Circumference	43cm	43.4cm	43.8cm
Mid Arm Circumference	11cm	11.1cm	11.3cm
SNAQ Score	10	11	14
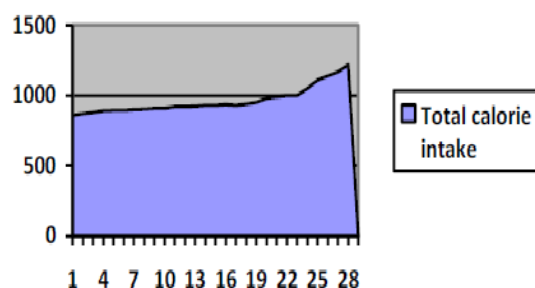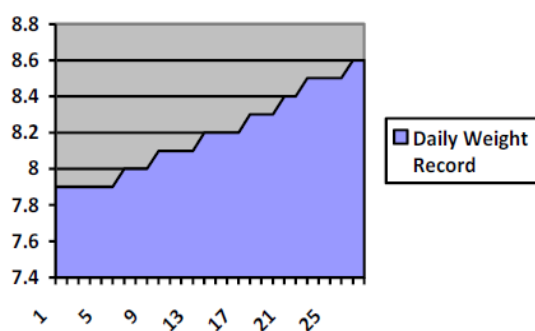
DISCUSSION

This case was presented with symptoms of Severe acute malnutrition. Patient has already received the treatment for above symptoms but didn't get satisfactory relief. Hence facility based management was considered for this case. Along with management, special attention was given to dietary plan. Dietary plan was made according to patients daily requirements of

calories, proteins & also keeping in mind the *Agni* factor of patient.

Due to faulty dietary & bowel habits *Aama* (undigested material which is toxic in nature) is produced. Due to this *Aama*, metabolism is disturbed. *Aama Pachana* enhances the *Agni* (Digestive fire) which properly assimilate diet & convert it into well formed *Dhatus*.

Thus *Aama Pachana* was initiated on Admission with *Lashunadi Vati* & continued for 7 days. *Lashunadi vati* is *Agnideepak* & *Aamapachak*. Then *Ayurvedic* regimen which mainly consists of*Kumarkalyana rasa* which mainly useful in *Agnivikruti* (hampered digestive fire), *Karshya* (Emaciation) along with other herbal drugs like *Guduchi, Musta, Yashtimadhu, shatavari ,Ashwaganda* & *Kraunchbij churna* which are having *Deepana, Pachana, Balya* & *Brihaniya* action. This regimen helps to build proper *Agni*(digestive Fire), helps to increase weight & proper growth & development & sustain it for longer period. So in this case, there wasgradual increase in daily calorie intake & weight.

Though *Ahara* (Dietary Management) in severe acute malnutrition is important factor to consider, but appetite remains the decisive factor for digestion. This appetite is completely depend upon digestive fire or *Agni* which converts the food consumed in various structural, functional constituents of energy. One of important part of management is nutritional rehabilitation with high energy food. Ready to use therapeutic food (RUTF) is an energy dense, mineral & vitamin enriched food that has greatly improved management of SAM. The composition is as follows.

Sr.no.	Composition	
1	Peanut paste	30%
2	Sugar	29%
3	Milk Solids	20%
4	Vegetable oil	18%
5	With added mineral mix	
	Total Calories per 100g	543Kcal
	Total protein per 100g	15gm

This was given according the need of patient. For palatability purposes & for maintaining interest regarding food the normal diet rich in calorie & protein was also continued.

CONCLUSION

Child with severe acute malnutrition shows the reductive adaption of the body physiology which slows down the process of working of body systems. He need gradual correction in

calories, proteins & other essential nutrients. Digestion of food is completely dependent upon Appetite & digestive capacity of body. In *Ayurveda*, it is termed as *Agni*. *Agni* or digestive power plays important role to maintain nutritional status of the individual. *Agni* or digestive converts the foodconsumed in various structural, functional constituents of energy. This case of severe acute malnutrition focuses & concludes that though diet is administered in systemic way, rich in protein & calorie, still *Agni Chikitsa* remains the mainstay of treatment even in paediatric population. As *Agni* or digestive power improves the metabolism, prepare gut to accimilate the protein rich diet & medicines. This *Ayurveda* regimen helps to increase in *Agni* or digestive fire.

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