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HOMOEOPATHIC APPROACH IN THE MANAGEMENT OF PROTEIN ENERGY MALNUTRITION - A RANDOMISED CLINICAL TRIAL

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ABSTRACT- "The MIND is the principle of LIFE which, divides into nutrition, sensation, and faculty of thought, corresponding to the inner most important stages in the succession of vital phenomena."

- The nutritional status of an individual reflects the balance between the supply and expenditure of nutrients. In most contexts, clinicians are concerned with the sequelae of deficient intakes to which the term "malnutrition" is usually applied. The term malnutrition is usually used in lay language for PEM.

Objectives

- To assess the mode of uncommon presentation of protein energy malnutrition in clinical practice.
- To analyze the miasmatic trait of dispositions prone for protein energy malnutrition.
- To assess cause & effect in relation to the study of a drug indicative in Protein energy malnutrition.

RESULTS: An analysis of the results according to the parameters fixed for the study conducted revealed that 19 of the 30 cases recovered, 7 cases improved and 4 did not improve.

CONCLUSION: A Homoeopathic remedy authentically chosen on the basis of Mental & physical generals and peculiar characteristic particulars can bring about the outstanding results irrespective of severity of symptoms, gross local pathological changes. In all the cases Constitutional remedies were indicated which yielded positive outcome in 19 cases. These outcomes satisfied the generalities of the subjects very well.

KEYWORDS: Protein-Energy Malnutrition; Marasmus; Nutrition, Miasms; Dispositions; Constitutional remedy.

INTRODUCTION

Protein-energy malnutrition (PEM), first described in the 1920s, is observed most frequently in developing countries but has been described with increasing frequency in hospitalized and chronically ill children in the United States. Distinction has been made between past malnutrition (stunting) and present malnutrition (wasting) by Waterlow in 1972, as revealed by height for age and weight/height for age standards respectively [1]. Now a day's size of urban population in developing Asian countries grows at a faster rate than in the developed West. Urban cities in India are being crushed by the onslaught of population growth, migration of rural poor and industrialization.

Protein energy malnutrition is one component of severe form of malnutrition caused by inadequate intake of protein and calories, and it usually occurs in the first year of life, resulting in generalized muscular wasting and absence of subcutaneous fat with severe nonedematous PEM and "skin and bones" appearance.[2] PEM patients frequently have 60% or less of the weight expected for their height and children have marked retardation in longitudinal growth.[3]

Protein energy malnutrition (PEM) is the term given to a group of clinical expressions which occur due to inadequate protein and calorie supply, especially in children. Many factors modify the adequacy of nutrition for individual child. Local custom and cultural practices may be as important as economic status. Thus, malnutrition may occur due to the inappropriate selection or preparation of nutrients rather than any real lack in their availability.[4]

According to Walter Gratzer, the study of nutrition probably began during the 6th century BC. In China, the concept of Qi developed, a spirit or "wind" similar to what Western Europeans later called pneuma.[5] Food was classified into "hot" (for example, meats, blood, ginger, and hot spices) and "cold" (green vegetables) in China, India, Malaya, and Persia. Humours developed perhaps first in China alongside qi. Ho the Physicianconcluded that diseases are caused by deficiencies of elements (Wu Xing: fire, water, earth, wood, and metal), and he classified diseases as well as prescribed diets. Around 400 BC, Hippocrates, who recognized and was concerned with obesity, which may have been common in southern Europe at the time, said, "Let food be your medicine and medicine be your food." Around 475 BC, Anaxagoras stated that food is absorbed by the human body and, therefore, contains "homeomerics" (generative components), suggesting the existence of nutrients.[6] William Prout in 1827 was the first person to divide foods into carbohydrates, fat, and protein.[7]

The principal problem amongst mankind is that many people in the world do not have sufficient land to grow, or income to purchase enough food. Harmful economic systems are the principal cause of poverty and hunger. **Proteins:** After water, the most abundant substances in most cells are proteins, which normally constitute 10 to 20 percent of the cell mass.[8]

Methods commonly used to study protein structure and function include immunohistochemistry, site-directed mutagenesis, nuclear magnetic resonance and mass spectrometry.[9]

The effect of nutrient on gene expression may have different implications in different individual situations. The regulation of gene expression by nutrients include a specific interaction between the cell and a particular nutrient (sensing) and a pathway by which such an interaction may translate into alterations in gene expression (signal transduction).[10]

Each organ has a unique pattern of growth and maturation. At birth, brain weight is 25%, and at 5 years 90%, of expected adult brain weight. Seventy-five per cent of postnatal brain growth takes place in the 2 years of life. By contrast, about 30% of male adult body mass is acquired during adolescence. [11]

Table 1 : Variation in body composition with age in childhood

Age	Mean weight (kg)	Whole body: water % body weight	Whole body: fat % body weight	FFM: water % LBM	FFM: protein % LBM
Birth	3.5	72	14	84	14
4 month	7	60	26	82	15
12 month	10	59	24	78	19
2 years	12	60	21	78	18
5 years	18	60	21	74	20
10 years	32	60	17	72	20

FFM: fat-free mass; LBM: lean body mass

TABLE 3: **Internationally accepted classification of malnutrition**

Nutritional status	% RWA (weight as % of reference weight for age)
Normal	> 80%
Grade I malnutrition	70 - 79%
Grade II malnutrition	60 - 69.9%
Grade III malnutrition	<60%

The Indian Academy of Pediatrics has recommended that the term grade III malnutrition may used when % RWA is 50 – 59.9% and grade IV when it below 50%. The Gomez classification used early grouped malnutrition into three grades with cut – off points at 90%, 75% and 60% instead of 80%, 70% anqd 60%. The Goemz classification is now no longer recommended.

HOLISTIC CONCEPT & CONCEPT OF INDIVIDUALIZATION:

Holism – means in nature to form wholes that are more than the sum of the parts by creative evolution (Oxford Dictionary).

Man is an aggregate of material units of flesh, blood, muscles, nerve, bones, organs etc. But in addition to being the sum of these constituents, the human being has a personality of his own which is more than the arithmetical sum total of the constituent parts of the body. Whole is made up of individual parts, whole manifest certain properties which the individual parts never capable of putting forth. [12]

In medicine we have to deal with 'Individuals' who are unique by virtue of their individuality in health as well as in diseases. Individuals are the unit of nature; we treat the particular human being and not an abstract condition of the human being, which is labeled as diseases.[13] Thus Dr. Hahnemann maintained that nature has no nomenclature of disease and insists that the true physician shall always treat the individuality of disease. And he remained strict 'individualist' in case of treating patient. [14]

Homoeopathy is a holistic theory. It is holistic because we always look into the organism as a single unit for the treatment as well as for the study purpose.[15]

METHODOLOGY

METHOD ADOPTED;

The subjects for this study were taken from the Central OPD, Village camps and satellite clinics of BHMC, Gujarat and NEIAH, Meghalaya

Type of research: Prospective Case study.

Study Design: Randomized non control sample trial.

Participant subjects: Males and females of 1 to 20 years of age with history of clinical presentation of PEM.

Selection criteria: on the basis of inclusive and exclusive criteria, history and physical findings.

Sampling method: Simple random sampling procedure.

Sample size: Minimum 30 in number.

Collection of data: A uniform case proforma will be prepared for the topic which will be used for collection of data from all selected subjects of the study.

Duration of study: All the cases of PEM registered between 1st of January 2023 to 30th Nov 2024 were selected for study.

Follow up: Every case was reviewed every month for minimum period of 1 year for asserting result criteria.

Indication of remedy: Remedy was prescribed for all the cases considering the state of disposition and characteristics particulars.

INCLUSIVE CRITERIA

- H/O prolonged poor diet intake with signs of progressive emaciation .
- Marasmus associated with recurrent diarrhoea.
- Late Post diarrheal complications of GIT like Protein losing enteropathy/ Protein Intolerence.
- H/O Premature birth with associated emaciation.

EXCLUSIVE CRITERIA

- PEM as secondary to; Tuberculosis, Recurrent Respiratory infections, Mal absorbtion syndrome, Congenital defects, Metabolic/ Endocrinal disorders, PEM associated with OR occurred from HIV Positive/ AIDS

RESULT CRITERIA

- Recovered, Improved, Not improved

HYPOTHESIS FORMULATED

- **Null hypothesis;** Homoeopathic medicines employed on the basis of constitutional approach are not effective in the management *Protein energy malnutrition*.
- **Alternative Hypothesis:** Homoeopathic drugs selected on the basis of constitutional approach are effective in the management *Protein energy malnutrition*.

Procedure of obtaining data

1. HISTORY OF THE PRESENTING COMPLAINTS

The presenting complaints along with the history of duration, onset and progress causative factors were recorded. All cases were taken as per standard case proforma prepared for the study.

2. PAST HISTORY

The past history was also considered in detail in the chronological order.

3. FAMILY HISTORY

Family history is taken to understand the functional and dominant miasmatic tendencies.

4. PERSONAL HISTORY

As Homoeopathy treats the patient and not the disease in the patient, the personal history with special emphasis on mind, thermals, desires, aversion, thirst, appetite, dreams, sleep, etc., was recorded in detail for constitutional prescription.

5. GENERAL PHYSICAL EXAMINATION

A general physical examination of the patient was considered to ascertain the vital parameters and basic data of the patient was done in all cases.

6. LABORATORY INVESTIGATIONS

The following investigations were carried out wherever required in all the subjects to assess the effect of the treatment.

7. ASSESSMENT OF CASES & SELECTION OF REMEDY

- Utmost importance was paid to changes observed in constitution in the changed state of the individual and characteristics particulars during case taking and prescription.
- Miasmatic consideration was done by taking the state of disposition, present illness, past history and family history of the patient.
- Selection of the remedy was on the basis of Physical Generals & Characteristic Particulars, and modalities. Appropriate Remedy was selected with its confirmation by referring Materia Medica.[16]

8. SELECTION OF POTENCY

Appropriate potency was selected on basis of Individual Susceptibility.

OBSERVATIONS AND RESULTS

1) Age Incidence: Statistical study was done to identify the age group with highest incidence.

Table No. 1 – Statistical Table Showing Age Incidence

Sl. No.	Age in years	No. of Patients	Percentage
1.	0-10 yrs	18	60%
2.	11-20 yrs	12	40%
	TOTAL	**30**	**100%**

As shown in table, maximum incidence of PEM in children was seen in age group 0-10 yrs 60% of the patients (18); 40% of patients were in the age group of 11-20 yrs (12).

2) Sex Incidence: of the 30 cases was studied and shown below.

Table No. 2 – Statistical Table Showing Sex Incidence

Sl.No.	Sex of patients	No. of Patients	Percentage
1.	Male	22	73.33%
2.	Female	8	26.66%
	Total	**30**	**100 %**

As shown in table above, 73.33% of the patients (22) were males and 26.66% of the patients (8) were females.

3) Incidence of Presenting Complaints:

Table No. 3 – Statistical Table Showing Incidence of Presenting Complaints

Sl.No.	Presenting Complaints	No. of Patients	Percentage
1.	Emaciation	19	63.33%
2.	Emaciation, recurrent diarrhea	10	33.33%
3.	Emaciation with long neck	1	3.33%
	Total	**30**	**100%**

In the study the patients came with following symptoms, Emaciation was seen in 19 patients (63.33%), Emaciation, recurrent diarrhea was seen in 10 patients (33.33%) and Emaciation with long neck was seen in 1 patient (3.33%).

4) Feeding History: statistical studies of 30 cases were done to know the feeding history.

Table No. 4 – Table Showing Incidence of Feeding History

Sl. No	Feeding history	No. of patients	Percentage
1.	Breast fed	16	53.33%
2.	Bottle fed	8	26.66%
3.	Weaning early	6	20%
	Total	**30**	**100%**

Out of 30 cases, Breast fed babies were seen in 16 cases (53.33%), Bottle fed babies were seen in 8 cases (26.66%) and early weaning babies were seen in 6 cases (20%).

5) Remedies used: The following table summarizes the remedies prescribed in 30 cases.

Table No.5- Table Showing Remedies given

Sl.No.	Remedies	No. of Patients	Percentage
1.	Sulphur	10	33.33%
2.	Calcarea Iodatum	2	6.66%
3.	Calcarea Phosphoricum	2	6.66%
4.	Baryta Carbonicum	2	6.66%
5.	Natrum Phosphoricum	1	3.33%
6.	Natrum Sulphuricum	1	3.33%
7.	Natrum Muriaticum	1	3.33%
8.	Silicea	2	6.66%
9.	Iodum	2	6.66%
10.	Phosphorus	2	6.66%

11.	Lycopodium Clavatum	1	3.33%
12.	Nux Vomica	1	3.33%
13.	Acetic Acid	1	3.33%
14.	Baryata Iodatum	1	3.33%
15.	Causticum	1	3.33%
	Total	**30**	**100%**

The study shows that Sulphur was frequently used remedy in 10 pts. (33.33%); Phos., Iodum, Silicea, Calc-Iod., Calc-Phos., Baryta-Carb were seen in 2 pts. each and Caust., Baryta-Iod., Acetic-Ac., Nux-vom., Lyco., Nat-Mur., Nat-Phos., Nat-Sulp. were seen in 1 pt. each.

6) Associated Complaints: The statistical data of associated complaints have been summarized in table no.-6.

Table No. 6 – Incidence of Associated Complaints

Sl. No.	Associated Complaints	No. of Patients	Percentage
1.	Present	20	66.66%
2.	Absent	10	33.33%
	Total	**30 Cases**	**100 %**

As shown in table above, 20 (66.66%) of cases had associated complaints; in 10 (33.33%) of the cases associated complaints were absent.

7) Socio-economic status: of the 30 cases was studied and shown below.

Table No. 7 – Statistical Table Showing Incidence of SES

Sl.No.	Socio-economic status	No. of Patients	Percentage
1.	Low	26	86.66%
2.	Medium	4	13.33%
	Total	**30**	**100 %**

Out of 30 cases, Low Socio-economic status was seen in 26 cases (86.66%) and Medium Socio-economic status was seen in 4 cases (13.33%).

(8) Perinatal History: statistical studies of 30 cases were done to know the peri natal history.

Table No.8 – Table Showing Incidence of Perinatal History

Sl. No	Peri natal history	No. of patients	Percentage
1.	Low birth-weight	12	40%
2.	Normal birth weight	18	60%
	Total	**30**	**100%**

Out of 30 cases, Low birth-weight was seen in 12 cases (40%) and Normal birth weight was seen in 18 cases (60%).

9) Developmental History: statistical studies of 30 cases were done to know the developmental history.

Table No. 9 – Table Showing Incidence of Developmental History

Sl. No	Developmental history	No. of patients	Percentage
1.	Normal	15	50%
2.	Delayed	15	50%
	Total	**30**	**100%**

Out of 30 cases, Normal developmental history was seen in 15 cases (50%) and Delayed developmental history was seen in 15 cases (50%).

10) Nutritional History: statistical studies of 30 cases were done to know the nutritional history.

Table No. 10 – Table Showing Incidence of Nutritional History

Sl. No	Nutritional history	No. of patients	Percentage
1.	Poor	26	86.66%
2.	Moderate	4	13.33%
	Total	**30**	**100%**

Out of 30 cases, Poor nutritional history was seen in 26 cases (86.66%) and Moderate nutritional history was seen in 4 cases (13.33%).

11) Miasmatic Diagnosis: The following table summarizes the miasmatic analysis of the 30 cases studied.

Table No. 11 – Table Showing Miasmatic Diagnosis

Sl.No.	Miasms	No. of Patients	Percentage
1.	Psora	3	10%
2.	Psoro-Sycotic	3	10%
3.	Sycotic	21	70%
	Syco-Syphilitic	3	10%
	Total	**30**	**100%**

Miasms involved in 30 cases were as follow, Psora was seen in 3 patients (10%), Psoro-sycotic was in 3 patients (10%), Sycotic was in 21 patients (70%) and Syco- syphilitic was seen in 3 patients (10%).

12) Result of Treatment: The results of the treatment are summarized as follows:

Table No.12– Table Showing Result of Treatment

Sl. No.	Results	No. of Patients	Percentage
1.	Recovered	19	63.33%
2.	Improved	7	23.33%
3.	Not Improved	4	13.33%
	Total	**30**	**100%**

It is evident from the above table that 63.33 %(19) of the cases recovered after the treatment, 23.33% (7) of the cases improved and 13.33% (4) of the cases showed no improvement.

DISCUSSION

This exhaustive study of 2 years is concluded on the observations of outcome based on statistical interpretations.

Some conclusive findings of the study are as follows:

1. The common sex incidence-males.
2. The common age incidence-1-10yrs.
3. Commonly presented diarrhea, vomiting and generalized weakness.

   Therefore to improve the general condition nutritious diet was advised especially rich in protein.
4. PEM is more marked in lower socio economic status because of poor nutrition.
5. Remedies used for method of treatment of cases in my study were based on peculiar symptoms. 21 Different remedies were used
6. Out of all 30 cases the cases 19 cases yielded a positive result.

Main works under taken-

The condition of PEM is often likened to an iceberg, of which 20 percent is visible above the water and about 80 percent submerged. The severe forms of PEM- kwashiorkor, nutritional marasmus and marasmic kwashiorkor - constitute the top, exposed part of the iceberg: they are relatively easy for a doctor or health worker to diagnose simply from their clinical manifestations.

On the other hand, children with moderate or mild malnutrition often do not have clear clinical manifestations of malnutrition; rather, they are shorter and or thinner than would be expected for their age and they may have deficits in psychological development and perhaps other signs not easy to detect. Mild and moderate PEM are diagnosed mainly on the basis of anthropometry, especially using measurements of weight and height and sometimes other measurements such as arm circumference or skin-fold thickness.

30 subjects were selected for this study by fulfilling the inclusion and exclusion criteria. This study helps us to learn what we can do in these cases, thus knowing the role of homoeopathy in the management of PEM in Children.

CONCLUSION

Principle conclusive findings of the study:

This work considering conscientious & diligent observations made on 30 subjects and its statistical outcome concludes that a Homoeopathic remedy authentically chosen on the basis of Mental & physical generals and peculiar characteristic particulars can bring about the outstanding results irrespective of severity of symptoms, gross local pathological changes.

In all the cases Constitutional remedies were indicated which yielded positive outcome in 19 cases. These outcomes satisfied the generalities of the subjects very well.

Secondly, a single remedy given with minimum dose without interfering its complete action with unnecessary repetitions shall bring about the steady but sure & consistent results in the cases of PEM.

Limitations of study:

PEM is not a disease expression which can be set right with mere nutritional supplementation. It requires a constitutional reframe of the affected child to restore normal functions. To restore a long affected morbid constitution it requires a sufficient time. Therefore a fixed time bond of two years of study was insufficient to show desired results.

Recommendation for further study;

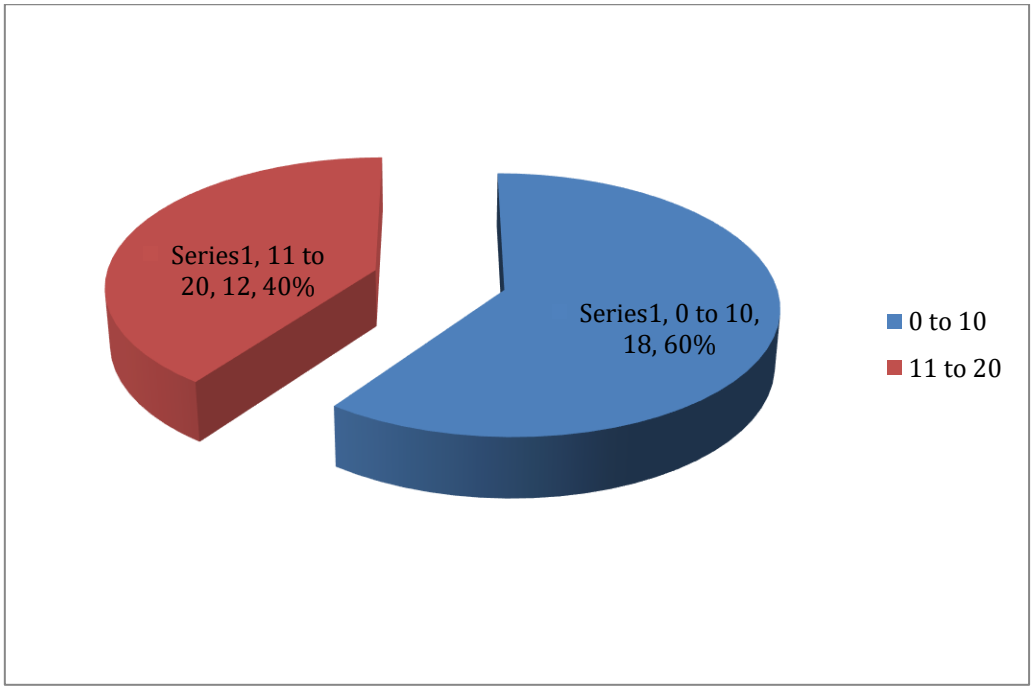
Like every horizontal study, this study also suffers from limitations in terms of time period and volume of study. Here it cannot be claimed as complete one. This needs to be supplemented with further research. It is recommended that a study can be taken up on PEM indicated remedies with carrying out anthropometric study and stool investigation to understand time taken for the remedy for the remedy to bring about the clinical and pathological recovery by assessing changes occurred at whole of the person and at particular level through Anthropometric study.

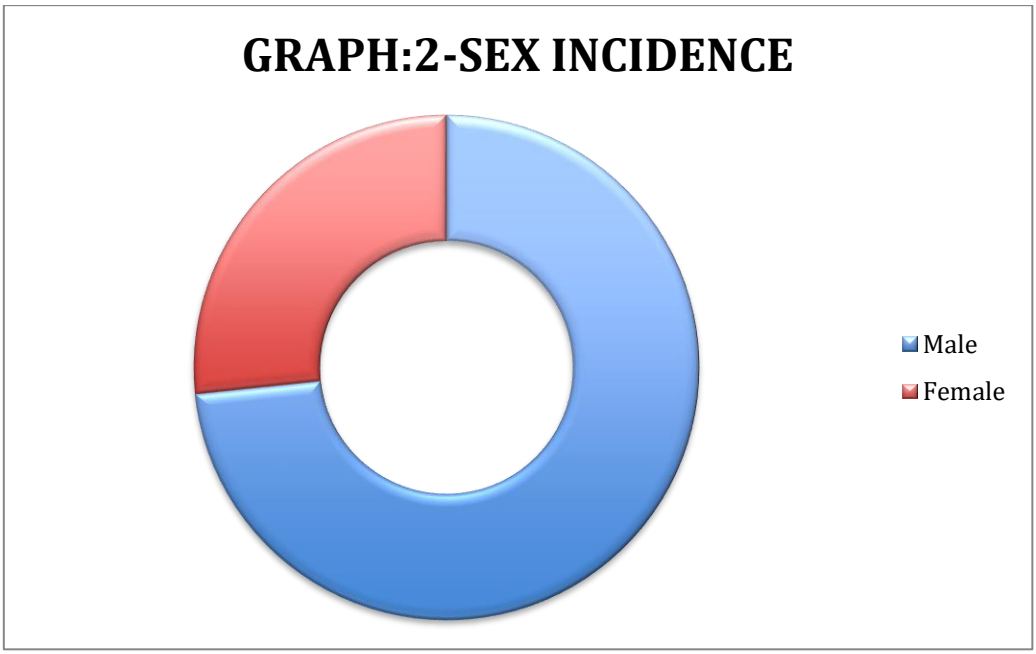
Thirty cases of PEM involving both the sexes, of age group between 0 to 10 years, who satisfied the inclusion & exclusion criteria, were selected for the study. They were successfully treated with homoeopathic remedies on the basis of Totality of symptoms, which shows that majority of them i.e. 63.33% recovered, 23.33% improved where as a minority of subject. i.e. 13.33% were not improved.

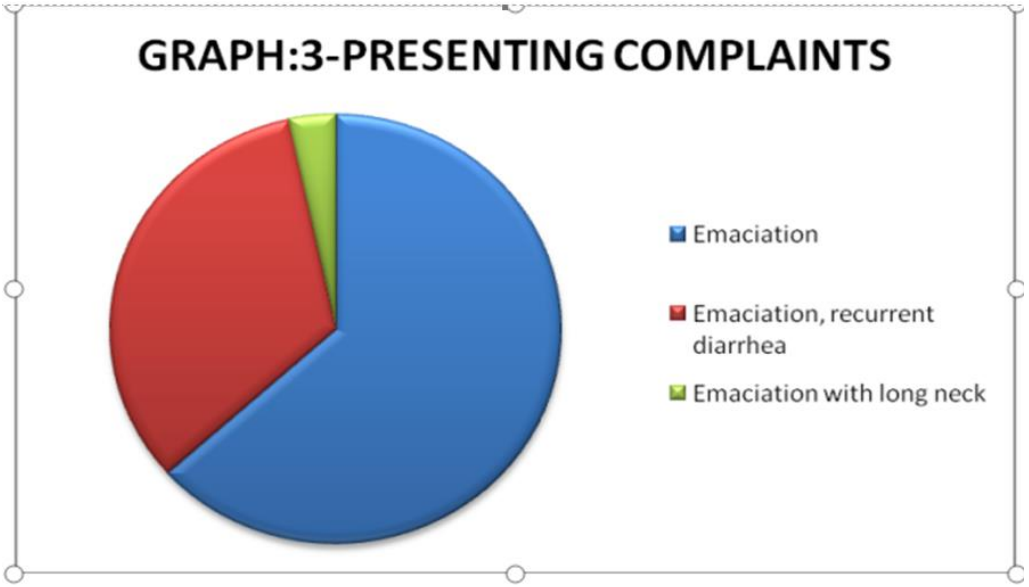
This result was statistically interpreted using chi-square test of significance.

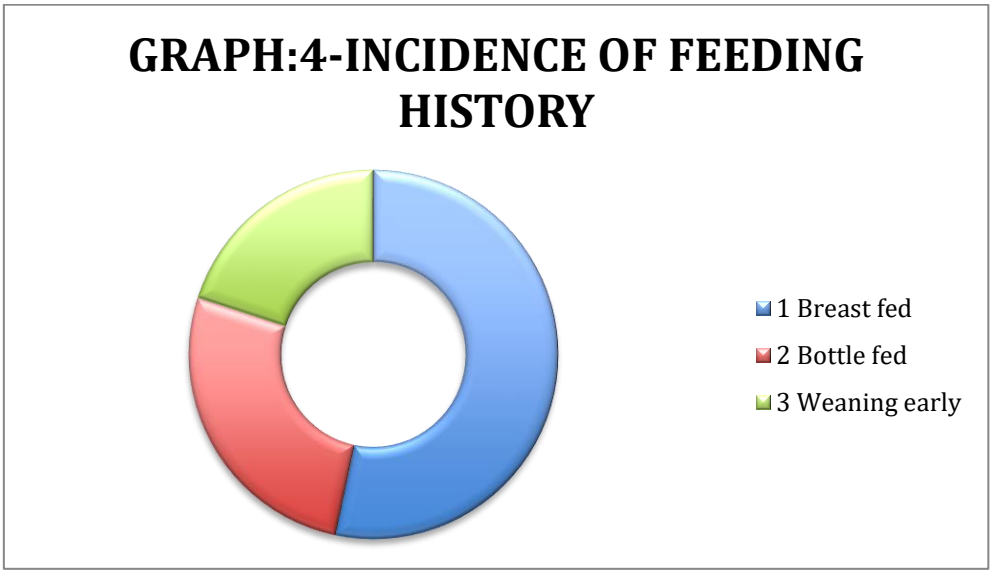
Therefore, I would like to conclude on a higher note stating that PEM can be easily and safely treated by homoeopathic remedies

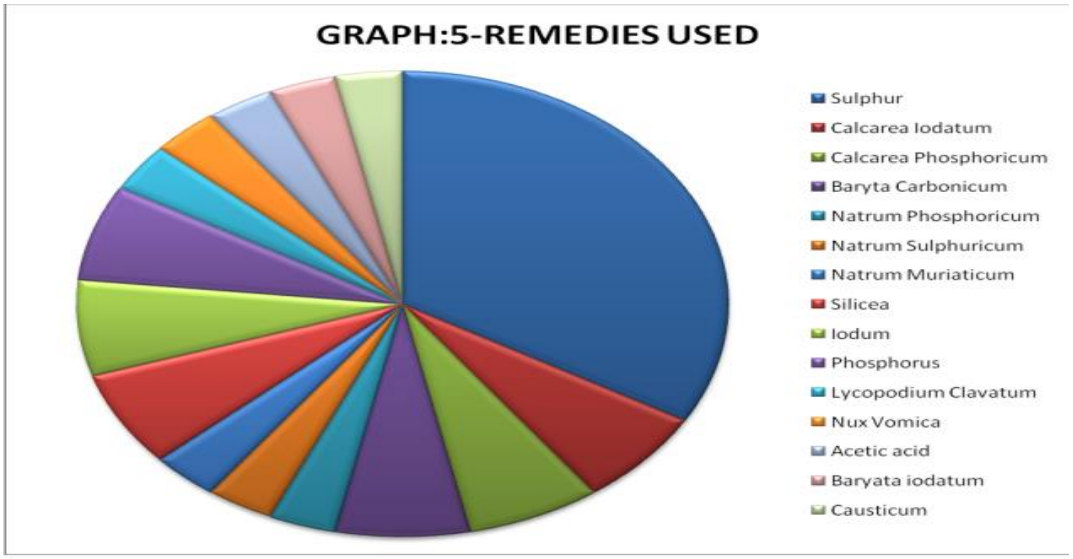
GRAPH NO 1-AGE INCIDENCE



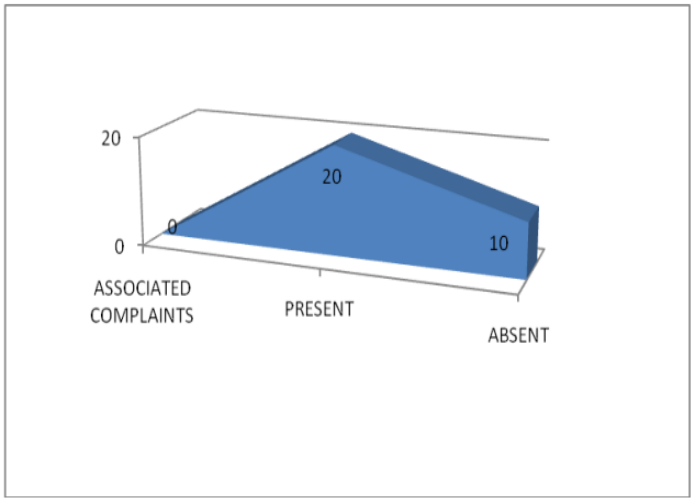



GRAPH:3-PRESENTING COMPLAINTS
Emaciation
Emaciation, recurrent diarrhea
Emaciation with long neck

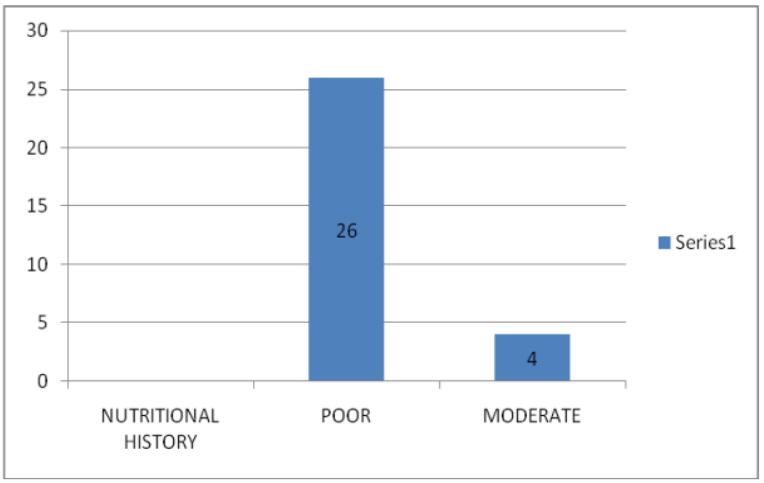

GRAPH:4-INCIDENCE OF FEEDING HISTORY
1 Breast fed
2 Bottle fed
3 Weaning early


GRAPH:5-REMEDIES USED
Sulphur
Calcarea Iodatum
Calcarea Phosphoricum
Baryta Carbonicum
Natrum Phosphoricum
Natrum Sulphuricum
Natrum Muriaticum
Silicea
Iodum
Phosphorus
Lycopodium Clavatum
Nux Vomica
Acetic acid
Baryata iodatum
Causticum

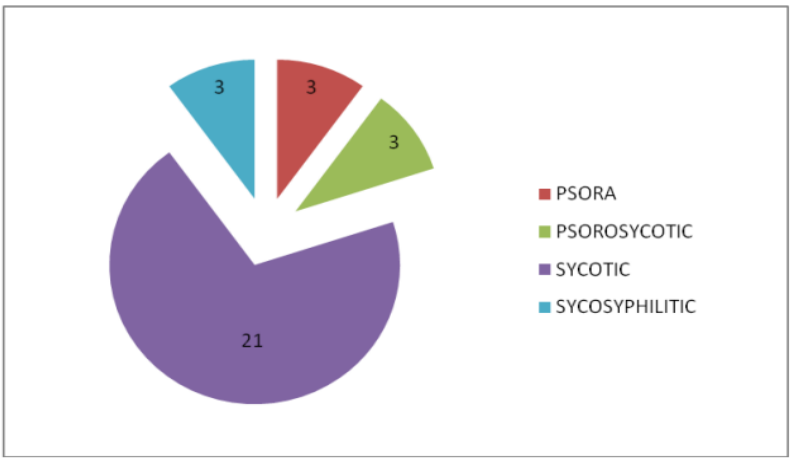
GRAPH 6-ASSOCIATED COMPLAINTS



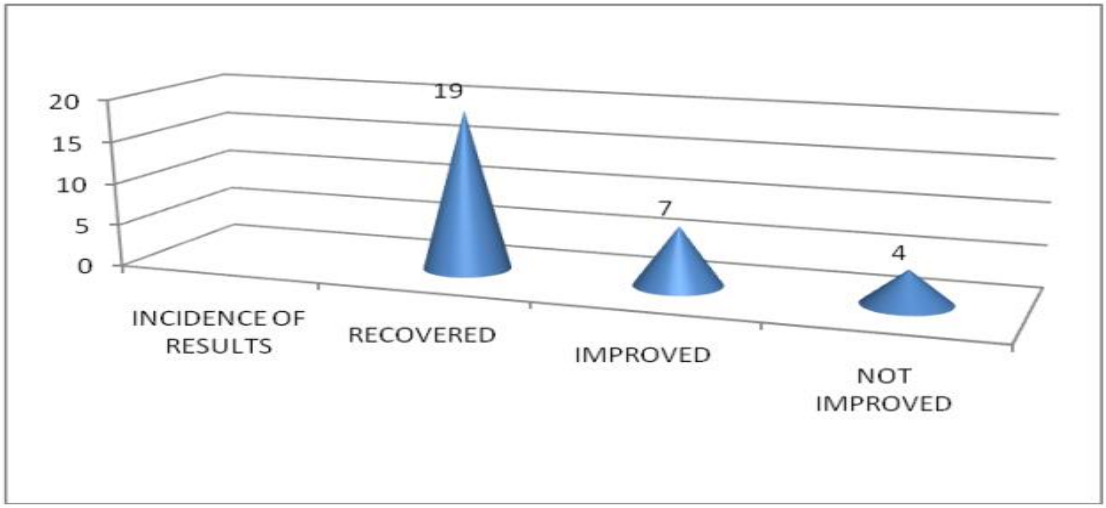
GRAPH 10-INCIDENCE OF NUTRITIONAL HISTORY



GRAPH 11-INCIDENCE OF MIASMATIC DIAGNOSIS



GRAPH 12-INCIDENCE OF RESULTS



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