

Assessment of Nutritional Supplements Prescribed in Pregnant Women and Pediatric Patients in Basaveshwara Teaching and General Hospital

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Abstract

Rational use of nutritional supplements is extremely important for better survival of the patient, especially in children where poor nutritional status will cause many co-morbid conditions with an increased risk of death. About 35% of under-five space deaths in the world are associated with malnutrition. Nutrition also place a major role in maternal health poor maternal nutritional status has been related to adverse birth outcomes [1].

The aim of the study was to assess the nutritional supplements prescribed in pregnant women and pediatric patients.

A six month hospital based prospective observational study was carried out in the department of pediatric and gynecology at BTGH, Gulbarga. The aim of the study was to assess the nutritional supplements prescribed in pregnant women and pediatric patients at the respective departments. The data was collected in a specially designed data collection form, from the case sheet of inpatient of pediatric department and outpatient of gynecology department enrolled into the study [2].

The study result shows that out of 75 patients in pediatric department, 41 (54.66%) were females and 34(45.33%) were males, malnutrition is more prevalent in toddlers (1-5 years) i.e. 48 patients (64%) when compared to neonates (up to 1 month) 02(2.66%), infants (1month-1year) 20(26.66%), children (5-14years), 5(6.66%).the educational status of their parents 27(36.00%) were grade 0 followed by 19(25.33%) were belonged to grade 1,6(8%) belonged to grade 2,11(14.66%) belonged to grade 3 and 10(13,33%) belonged to grade 4. Out of 75 patients grade 2 PEM 33(44%) is more when compared to grade 1 PEM 7(9.33%), grade 3 PEM 19(25.33%) and grade 4 PEM 16(21.33%). 57 patients were improved 14 patient were discharged under request, 4 patient were referred and 00 deaths are reported [3]. The majority of supplements were administered orally (75%) followed by parenteral route 25% various types of nutrients are prescribed in pediatrics majority including multi vitamin, elemental iron +folic acid, vit A, vit C, zinc acetate, calcium carbonate+vitD3, electrolytes. the majority of prescription were with brand name (73.33%) followed by generic name (26.66%) among the associated co-morbidity conditions with malnutrition bronchopneumonia (13.33%) followed by severe anemia (10.66%), nutritional anemia (12%), acute gastroenteritis (9.33%),pulmonary TB (6.66%) and others [4]. [Table 1-5]

Out of 100 pregnant women 50(25%) are of second trimester, 25(25%) are of first trimester, 25(25%) are of third trimester the majority of prescription were with brand name (72%) followed by generic name (28%). Majority of the supplements were administered orally (90%) when compared to parenteral administration (10%). The nutrients prescribed for pregnant women include T.doxinate plus for 47 patients, T.livogen Z (68 patients), T.mecalvit (65 patients), T.orofer XT (19 patients), cap. Becosule (23 patients), protein powder (25 patients), T.folvite (7 patients) [5]. [Table 6-9] The economic and literacy status of the households are the main factors causing nutritional imbalances in children. The number of cases reported concluded the shortage of nutrients to this region and unawareness in pregnant women [6].

Thus the interventional programmes are needed for improving the health status of mothers and children.

Keywords: Protien energy malnutrition(PEM); Nutritional Supplements; Rational Drug Use

Gender distribution	Number of patients	Percentage (%)
Male	34	45.33%
Female	41	54.66%
Total	75	100.00%

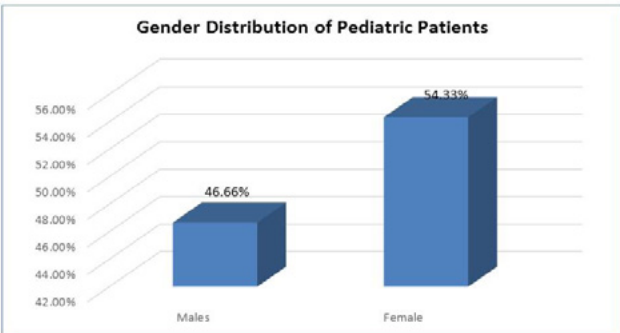


Table 1: Gender Distribution of Pediatric Patients

Age Distribution	Number of patients	Percentage (%)
Neonates (upto 1 month)	2	2.66%
Infants (1 month – 1 year)	20	26.66%
Toddlers (1 – 5 years)	48	64.00%
Children (5- 14 years)	5	6.66%
Total	75	100.00%

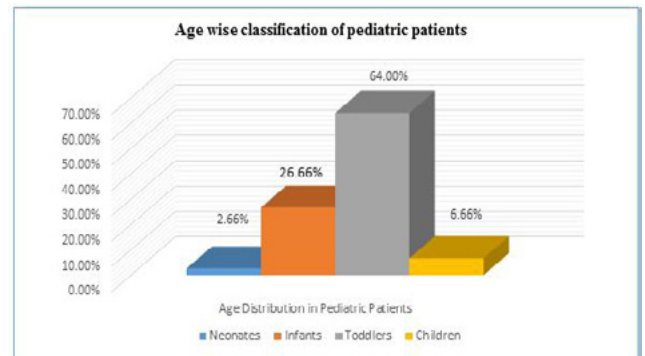


Table-2: Age wise classification of pediatric patients

Grades	Number of parents	Percentage (%)
Grade 0 (illiterates)	27	36.00%
Grade 1 (School)	19	25.33%
Grade 2 (PUC)	6	8.00%
Grade 3 (University)	11	14.66%
Grade 4 (Graduates)	10	13.33%
Total	75	100.00%

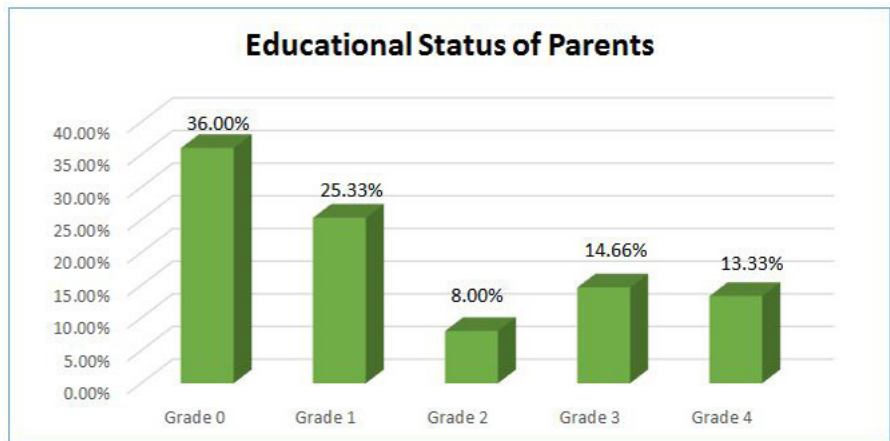


Table-3: Details of educational status of Parents

Condition	Number of patients	Percentage (%)
Grade I	07	9.33%
Grade II	33	44.00%
Grade III	19	25.33%
Grade IV	16	21.33%
TOTAL	75	100.00%
Total	75	100.00%

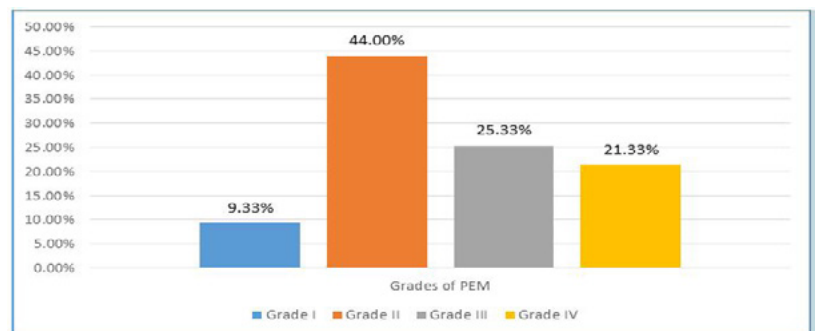


Table-4: Condition of Pediatrics patients at the time of discharge

Details of number of patients in each trimester in gynecology:

Out of 100 patients, 25(25%) patients are of first trimester, 50(50%) patients are of second trimester, 25(25%) are of third trimester .

Introduction

Nutrition plays a major role in maternal and child health. Poor maternal nutritional status has been related to adverse birth outcomes; however, the association between maternal nutri-

tion and birth outcome is complex and is influenced by many biologic, socioeconomic, and demographic factors, which vary widely in different populations. Understanding the relation between maternal nutrition and birth outcomes may provide a basis for developing nutritional interventions that

Trimester	Number of Patients	Percentage
1st	25	25.00%
2nd	50	50.00%
3rd	25	25.00%
Total	100	100.00%

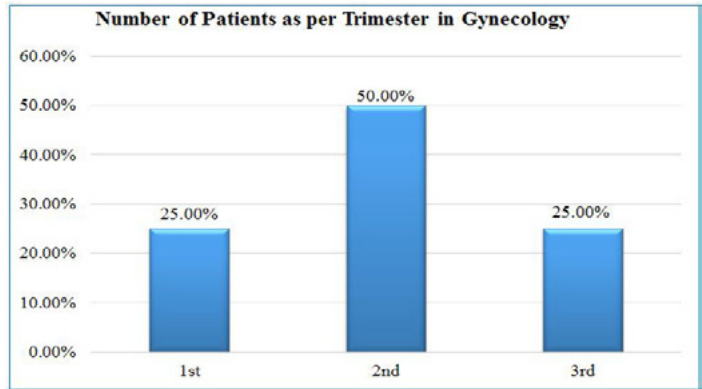


Table-5: Number of Patients as per Trimester in Gynecology

Co-Morbidity	Number of patients	Percentage (%)
Bronchopneumonia	10	13.33%
Severe Anemia	08	10.66%
Pulmonary TB	05	6.66%
Malaria	04	5.33%
Acute Gastroenteritis	07	9.33%
Nutritional Anemia	09	12.00%
Dehydration	05	6.66%
Chronic Heart Disease	03	4.00%
Epilepsy	05	6.66%
Measles	03	4.00%
Viral Encephalitis	02	2.66%
Septicaemia	03	4.00%
Kwashiorkar	03	4.00%
Developmental Delay	04	5.33%
Left Sided Plural effusion	02	2.66%
Cleft lip	02	2.66%
Total	75	100.00%

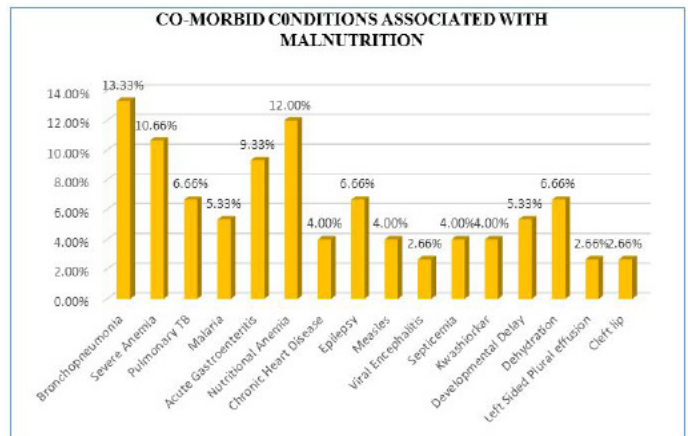


Table 6: Co-Morbid Conditions Associated with Malnutrition

Route of Administration	Number of Nutritional Supplements	Percentage (%)
Oral	137	75.00%
Parenteral	46	25.00%
Total	183	100.00%

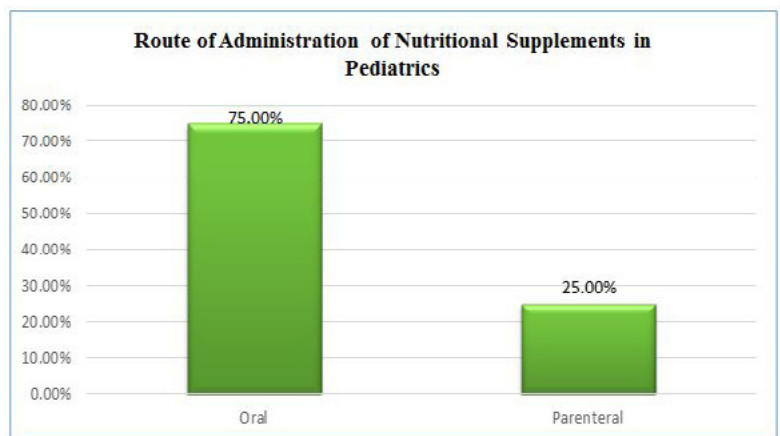


Table 7: Route of Administration of Nutritional Supplements in Paediatrics

Route Of Administration	Number of Nutritional Supplements	Percentage
Oral	174	93.54%
Parenteral	12	6.45%
Total	186	100.00%

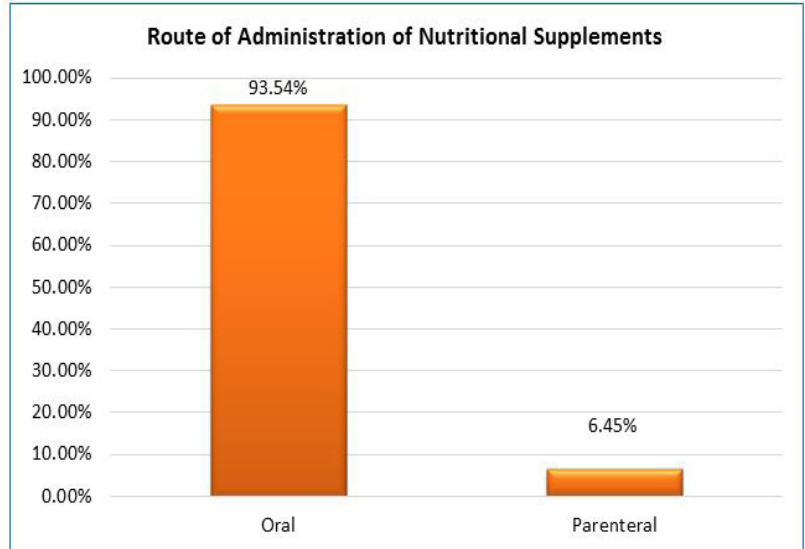
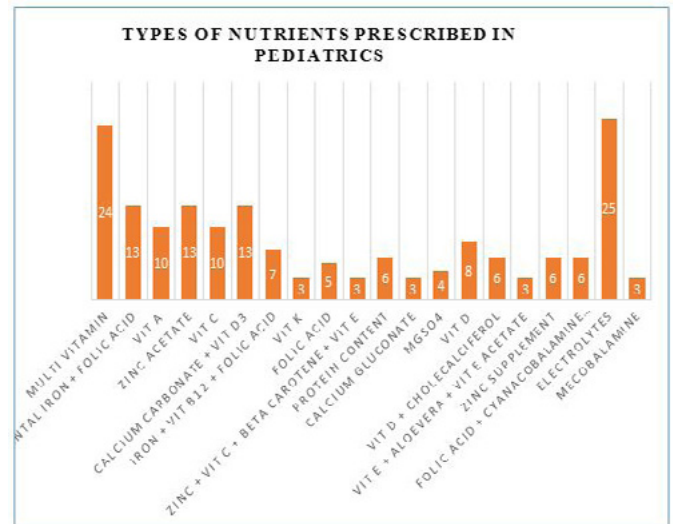


Table 8: Route of administration of nutritional supplements in Gynaecology

Type of Nutrient	Number of patients
Multivitamin	24
Elemental Iron + Folic Acid	13
Vit A	10
Zinc Acetate	13
Vit C	10
Calcium Carbonate + Vit D3	13
Iron + Vit B12 + Folic Acid	7
Vit K	3
Folic Acid	5
Zinc + Vit C + Beta Carotene + Vit E	3
Protein Content	6
Calcium Gluconate	3
MgSo4	4
Vit D	8
Vit D + Cholecalciferol	6
Vit E + AloeVera + Vit E acetate	3
Zinc Supplement	6
Folic Acid + Cyanacobalamine + Ferrous Fumarate	6
Electrolytes	25
Mecobalamine	3

Table 9: Types of Nutrients Prescribed in Pediatrics

will improve birth outcomes and long-term quality of life and reduce mortality, morbidity, and health-care costs [7]. Current knowledge on maternal nutritional requirements during pregnancy and review studies of the nutrients/nutrient combinations that have been most commonly investigated in association with birth outcomes, including energy, protein, essential fatty acids (specifically omega-3 fatty acids), iron, folate, and multi nutrient supplements. Other nutrients which have been



studied in conjunction with birth/pregnancy outcomes (e.g., magnesium, zinc, calcium, vitamin C) but for which there is less evidence are not included because of space limitations [8].

Malnutrition is inadequate intake of nourishing food or consumption of a particular type of food item little or no nutritional value [9]. It is a state of nutrition where the weight for age, height for age and weight for height indices are below than the normal [10]. Malnutrition continues to be a major public health problem in developing countries. Marshal and Buffington stated that sometimes, a pregnant woman does not know that she needs to eat a greater amount of quality food. For a healthy pregnancy, steady supplies of micro nutrients are essential both for the mother and the growing baby. Modern research has best way to ensure long term health of mothers and their infants [11]. [Table 10-15]

Type of Nutrient	Number of patients
T.Doximanie plus	47
T.Livogen z	68
T .Mecalvit	65
T.Orofer XT	19
Cap.Becousle	23
Protein Powder	25
T.Folvite	07

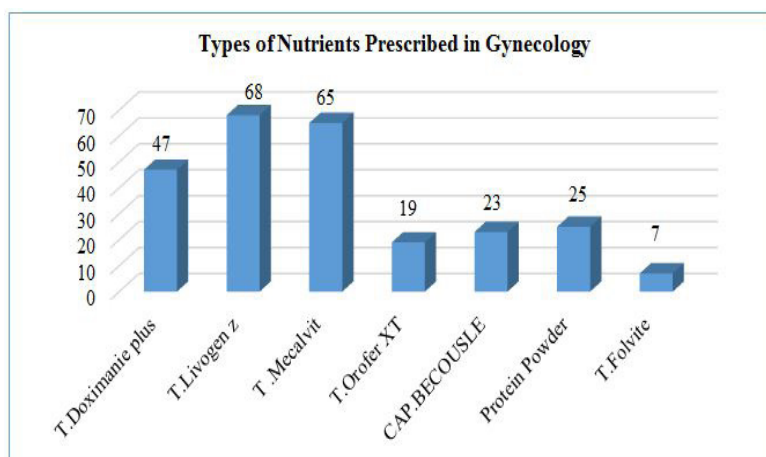


Table 10: Types of nutrients prescribed in gynaecology

In our study the condition of the patient at the time of discharge was observed at 75% in improved conditions (57 cases) and none of the cases reported as death in the study.

Condition	Number of patients	Percentage (%)
Improved	57	75.00%
Discharge under request	14	18.66%
Referred	04	5.33%
Death	00	00.00%
TOTAL	75	100.00%

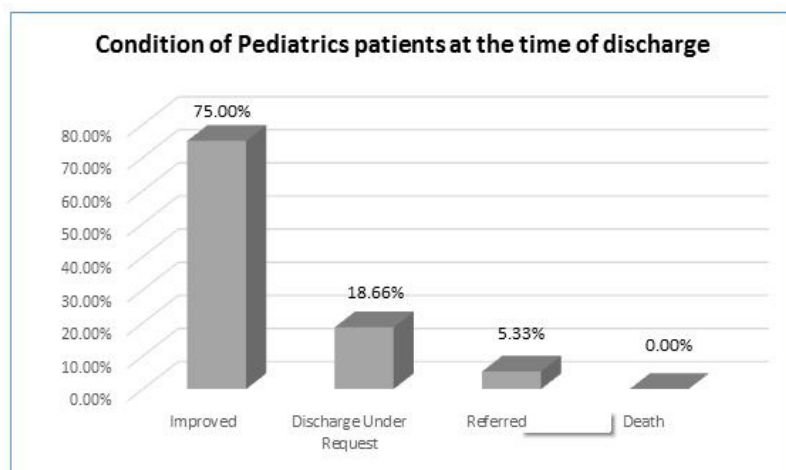


Table 11: Condition of Pediatrics patients at the time of discharge

Also the study observed that vitamins are given more priority than powders and syrups.

Number of Nutrients	Number of Prescriptions	Percentage
2	38	50.66%
3	16	21.33%
4	9	12.00%
5	6	8.00%
6	6	8.00%
Total	75	100%

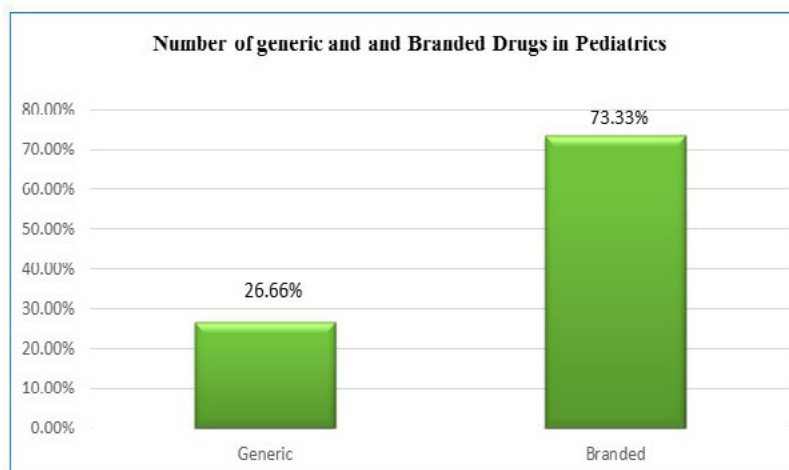


Table 12: Number of generic and Branded Drugs in Pediatrics

Type of Drug	Number of Prescriptions	Percentage
Generic	20	26.66%
Branded	55	73.33%
Total	75	100.00%

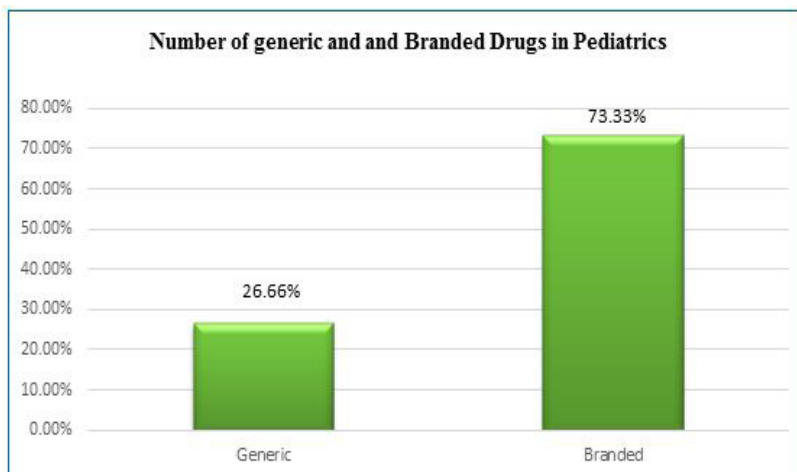


Table 13: Number of generic and Branded Drugs in Pediatrics

Type of Drug	Number Of Prescriptions	Percentage
Generic	28	28.00%
Branded	72	72.00%
Total	100	100.00%

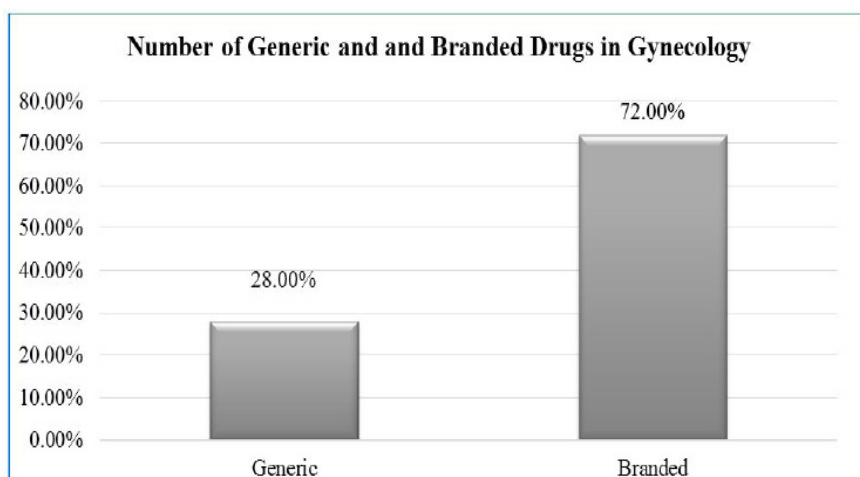


Table 14: Number of Generic and Branded Drugs in Gynecology

Number of Nutrients	Number of Prescriptions	Percentage
1	32	32.00%
2	32	32.00%
3	14	14.00%
4	16	16.00%
5	6	6.00%
Total	100	100%

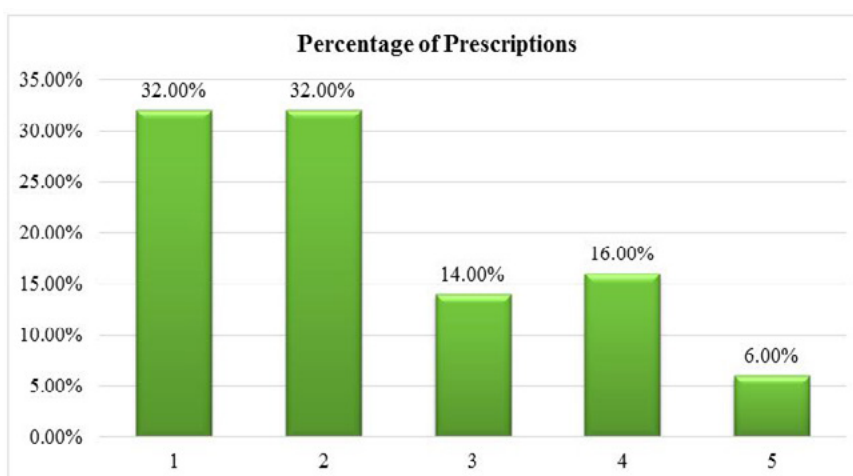


Table 15: Number of Nutritional Supplements per prescription in Gynaecology

Materials and Methods

Study site

The study was conducted at the department of pediatrics and department of gynecology at Basaveshwar teaching and general hospital (BTGH) a 765 bedded tertiary care teaching hospital, which is one of the largest hospitals in Gulbarga.

Study period

The study was carried out for a period of six months from December 2013 to May 2014.

Study design

It is a prospective-observational study.

Study criteria

Inpatients visiting to the department of pediatrics and outpatients visiting to the department of gynecology are enrolled in the study by considering the following inclusion and exclusion criteria after taking consent from the parent/guardians of patients(annexure-I)

Inclusion criteria

Patients below age of 14 years of either sex, who are malnourished.(pediatric department)

Patients prescribed with nutritional supplements.

Pre-natal pregnant women from first trimester to third trimester.(gynaecology department)

Pregnant women prescribed with nutritional supplements.

Patients willing to participate in the study.

Source of data

The data of the study was collected by using the following:

Case sheets of the Inpatients.

OPD cards of the Out-patients.

Lab reports.

Methodology

The study was conducted at the department of pediatrics and department of gynecology at Basaveshwar teaching and general hospital (BTGH). Inpatients visiting to the department of pediatrics and outpatients visiting to the department of gynecology are enrolled in the study by considering the inclusion and exclusion criteria after taking consent from the parent/guardians of patients. The following data was collected from case sheets of In-patients, OPD cards of out-patient and from lab reports from lab reports in a specially designed data collection form [18]. (Annexure-II)

- Demographic profile of the patient
- Details of prescribed nutritional supplements (name ,strength ,routes of administration)
- Dose and dosing frequency
- Diagnosis of the case
- Co-morbid conditions associated with PEM.
- Condition of the patient at the time of admission and discharge.

Socio-demographic data

- Name
- Age

- Sex
- Occupation
- Educational status
- Regional status

Disease data

- Type of PEM

Treatment data

- Nutritional supplement prescribed
- Number of supplements prescribed
- Route of supplements prescribed
- Dose of the supplements prescribed
- Therapeutic outcomes

The collected data was assessed by using standard textbooks, journals, articles, internet sources like Micromedex online and by other relevant sources.

Results and Discussion

The present study was carried out in pediatrics and gynecology department of BTGH, Gulbarga. The whole population was used as a sample hence there were no sampling techniques used in the study. The findings of the study also revealed that malnutrition in pregnancy resulted in offspring's with low birth weight. The study further showed that socio economic factors in literacy are some of the causes of malnutrition in population [19].

Pediatric toddlers of age bearing 1-5 years are maximum cases shown i.e. 64% (48 cases) and neonates are lowest number of cases are observed. i.e. 2.6% (2 cases) during the study. The study also reveals that nearly 50% of population are illiterates this is one of the major reason for continued malnutrition problems in the region [20]. In the study more than 75% (57 cases) are shown improvement in hospitalized treatment and only 5% (4 cases) of population are referred for higher treatment. 7.50% of pregnant women's are malnutrition suffering in second trimester [21].

The major associated co-morbid conditions of the cases are bronchopneumonia (13%) and maximum number of cases are reported for pulmonary tuberculosis (6%). It also indicates that pediatrics are reported co-morbidity followed by pregnant women. This study has tried to examine the consequences of malnutrition among child bearing mothers in this region [22].

This study also recommends that pregnant women should always attend the antenatal clinics to learn more about what to eat and how to prepare nutritive food. Government should establish more number of primary health care centers especially in the rural areas so that pregnant women and child could attend [23].

This study indicates that the maximum numbers of cases could not utilize the antenatal clinics. Lowest number of malnutrition children were found among mother with antenatal care visits. This study shows that there is a significant association between mothers antenatal care visit and child nutritional status [24].

This study indicates previous birth intervals as an important risk factors of child malnutrition. The maximum two types of formulations are prescribed in 50% (38 cases) and more than three formulations are prescribed in 21% (16 cases) [25].

This study shows that multi-vitamins are the formulations prescribed for more time followed by iron supplements (13cases) and condition in our study the condition of the patient at the time of discharge was observed at 75% in improved conditions (57 cases) and none of the cases reported as death in the study. Also the study observed that vitamins are given more priority than powders and syrups [26].

Conclusion

The economic and literacy status of the household is the main factor causing nutritional imbalances in children. This study recommends the evaluation of prescription during pregnancy may reduce percentage of shortage of nutrients in this region. Thus the interventional programmes are needed for improving the health status of mothers and child.

In this study it is concluded that malnutrition is still an important problem in this region. Socioeconomic and demographic factors are found to be significantly associated with high prevalence of malnutrition among children [27].

A continued effort by the government and non-government organizations and the community is essential to improve the nutritional status of the children. In addition, the nutritional programmes need to be done continually and special attention should be given to the rural and poorest and the most undernourished.

References

- 1) Pelletier DL, Frongillo Jr EA, Schroeder DG, Havichd JP (1994) A methodology for estimating the contribution of malnutrition to child mortality in developing countries. *J Nutr* 124: 2106.
- 2) Dharmalingam A, Navaneetham K, Krishnakumar CS (2010) Nutritional Status of Mothers and Low Birth Weight in India. *Matern Child Health* 14:290-298.
- 3) Alkire S, Santos ME (2011) Acute Multidimensional Poverty: A New Index for Developing Countries. OPHI Working paper No. 38. University of NSSO. Level and Pattern of Consumer Expenditure: NSS 66th Round, 2009-10. Kolkata: National Sample Survey Organization office. Ministry of Statistics and Programme Implementation, Government of India; Oxford: Oxford Poverty and Human Development Initiative.
- 4) The Million Death Study Collaborators (2010) Causes of neonatal and child mortality in India: a nationally representative mortality survey. *Lancet* 376: 1853-1860.
- 5) National Programme of Nutritional Support to Primary Education (2006). New Delhi: Ministry of Human Resource Development, Government of India.
- 6) Langlely SC, Jackson AA (1994) Increased systolic blood pressure in adult rats induced by fetal exposure to maternal low protein diets. *Clin, Sci* 86: 217-222.
- 7) Bhutta Z, Ahmad T, Black RE, Cousens S, Dewey K, et al. (2008) The Maternal and Child Under nutrition Study Group. What works? Interventions to affect maternal and child under nutrition and survival globally. *Lancet* 371: 417-440.
- 8) Noah S Scheinfeld, Chief Editor: Romesh Khardori. Protein-Energy Malnutrition.
- 9) Protein energy malnutrition – Classification, causes and symptoms. By Dr Nisreen Nakhoda.
- 10) King HM et al. (1988) Nutrition for Developing Countries, Oxford University press, Nairobi.
- 11) Kiruba S Varadharajan, Tinku Thomas, Anura V Kurpad (2013) Poverty and the state of nutrition in India. *Asia Pac J ClinNutr* 22: 326-339.
- 12) Caroline Fall (2009) Maternal nutrition: Effects on health in the next generation. *Indian J Med Res* 130: 593-599.
- 13) KebedeMengistu, KassahunAlemu, Bikes Destaw (2013) Prevalence of Malnutrition and Associated Factors Among Children Aged6-59 Months at HidabuAbote District, North Shewa, Oromia Regional State. *J Nutr Disorders Ther* T1.
- 14) Nure Alam Siddiqi, Nuruzzaman Haque, Abdul Goni (2011) Malnutrition of Under-Five Children: Evidence from Bangladesh. *Asian Journal of Medical Sciences* Vol 2: 2
- 15) Krishnamachari KAVR, And Leela Iyengar (1975) Effect of maternal malnutrition on thebone density of the neonates. *Am. J. Clin. Nutr.* 28: 482-486.
- 16) Suharno D1, West CE, Muhilal, Logman MH, de Waart FG, et al. (1992) Cross-sectional study on the iron and vitamin A status of pregnant women in West Java, Indonesia. *Am J ClinNutr.* 56: 988-993.
- 17) Fiona Mathews, Patricia Yudkin, Andrew Neil (1999). Influence of maternal nutrition on outcome of pregnancy:prospective cohort study. *BMJ* 319: 339–343.
- 18) Laura E Caulfield, Mercedes de Onis, Monika Blössner, Robert E Black (2004) Under nutrition as an underlying cause of child deaths associated with diarrhea, pneumonia, malaria, and measles. *Am J Clin Nutr* 1: 193-198.
- 19) Semba RD, de Pee S, Hess SY, Sun K, Sari M, et al. (2008). Child malnutrition and mortality among families not utilizing adequately iodized salt in Indonesia. *Am J ClinNutr.* 87: 438-444.
- 20) Kimber K, Baldwin C (2014) Factors that are Associated with Malnutrition in Vulnerable Populations from Economically Developed Countries: A Narrative Synthesis of a Systematic Review. *European Journal of Nutrition & Food Safety* 2347-5641.
- 21) Caroline HD Fall, Chittaranjan S Yajnik, Shobha Rao, Anna A Davies, Nick Brown, et al. (2003) Micronutrients and Fetal Growth J. *Nutr.* 133: 1747S–1756S.
- 22) Jacinta A Opara, Helen E Adebola, Nkasiobi S Oguzor, Sodiénye A Abere (1992) Malnutrition during Pregnancy among Child Bearing Mothers in Mbaitolu of South-Eastern Nigeria. *Advances in Biological Research* 5: 111-115.
- 23) Zappitelli M, Goldstein SL, Symons JM, Somers MJ, Baum MA, et al. (2008) Protein and calorie prescription for children and young adults receiving continuous renal replacement therapy: a report from the Prospective Pediatric Continuous Renal Replacement Therapy Registry Group. *Crit Care Med.* 36: 3239-3245.
- 24) Marjorie de Neefa, Vincent GM Geukersa, Aafke Dralb, Robert Lindeboomc, Hans P Sauerwein, et al. (2008) Nutritional goals, prescription and delivery in a pediatric intensive care unit. *Clin Nutr* 27: 65–71.

25) Taddese Alemu Zerfu, Henok Taddese Ayele (2013) Micronutrients and pregnancy; effect of supplementation on pregnancy and pregnancy outcomes: a systematic review. *Nutrition Journal* 12:20.

26) Sushmita Das, Ujwala Bapat, Neena Shah More1, Glyn Alcock, Armida Fernandez, et al. (2012) Nutritional status of young children in Mumbai slums: a follow-up anthropometric study. *Nutrition Journal* 11: 100.

27) Anuraj H Shankar, Elizabeth L Prado, Katherine J Alcock, Husni Muadz, Michael T Ullman (2012) Maternal Multiple Micronutrient Supplements and Child Cognition: A Randomized Trial in Indonesia. *Pediatrics* 130: 536-546.

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