THE EFFECT AND CAUSES OF PROTEIN ENERGY MALNUTRITION ON PRE-SCHOOL CHILDREN IN BIHAR

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ABSTRACT

Pre-school children are one of the most nutritionally vulnerable segments of the population. Nutrition during the first five years has an impact not only on growth and morbidity during childhood, but also acts as a determinant of nutritional status in adolescent and adult life. A recent appraisal of diet and nutrition situation in rural India by National nutrition Monitoring Bureau revealed that about 45% of the pre-school children are undernourished (weight for age <75% of standard) while about 62% are stunted (height for age< median 2-sd of standard) . About 47% of the adults had chronic energy Deficiency (CED, BMI <18.5). The objective of this study was to Know the socio-demographic features of the sample respondents, Record the food and nutrient intake of the respondents and compare the same with the available recommended dietary allowances (RDA) and Nutritional status of the Preschoolers. It was a cross sectional study carried out in rural areas of Muzaffarpur District, Bihar. 200 children were selected randomly for the study. The study was designed to include all eligible aged 1-5 years old children. Mothers of children were interviewed to get the necessary information. Weaning practices and food consumption of the subjects was assessed using a 3-day 24-hour Dietary recall method. Nutritional intake was compared with Indian council of Medical Research Recommended Dietary Allowances (RDA-2010) and Nutritional status assessed by Indian Academy of Paediatrics (IAP) classification. The study reveals that complementary feeding practices were inappropriate and the kind of food offered to pre-school children needs to be improved for future health prospects since this is the period in which there is a higher prevalence of malnutrition and deficiency of certain micronutrients.

Keywords -Weaning , Food, Nutrition, Health, children.

1. INTRODUCTION

Nutrition is a core pillar of human development and concrete, large- scale programming not only can reduce the burden of under nutrition and deprivation in countries but also can advance the progress of nations. The World Health Organization (WHO) defines malnutrition as "the celluar imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth , maintenance , and specific functions." The term protein- energy malnutrition (PEM) applies to a group of related disorders that include marasmus, Kwashiorkor and intermediate states of marasmic- Kwashiorkor. The term marasmus is derived from the ***Greek word marsmos, which means withering or wasting.*** Marasmus involves inadequate intake of protein and calories and is characterized by emaciation. The term Kwashiorkor is taken from the ***Ga language of Ghana and means " the sickness of the weaning "*** Williams first used the term in 1993, and it refers to an inadequate protein intake with reasonable calorie (energy) intake . Disaggregating data from NFHS-3 on stunting, wasting and underweight children under-three indicate that six states in india accounts for a majority of the underweight children in the country. These include Bihar, Chhattisgarh , Jharkhand ,Meghalaya ,and Uttar Pradesh. The percentage of underweight children in these states is more than the national average (3) According to Noah S Scheinfeld 2013 Edema is characteristic of Kwashiorkor but is absent in marasmus. PEM occurs in three clinically distinguishable forms, viz. Kwashiorkor, marasmus and marasmic- kwashiorkor. In addition, a large number of children suffer from various sub- clinical forms of PEM like underweight , stunting (short stature) and wasting (thinness). Delayed introduction of Supplementary foods (foods in addition to breast milk) usually until the infant completes one year of age is a common practice . Thus, when breast milk is not adequate, delayed Supplementary feeding futher aggravates the dietary inadequacy among such infants leading to PEM.

2. LITERATURE SURVEY

1.World Bank (2005) Stated that Indian with 16% of world's population, out of which 24% are living in rural poverty.

2. Chakraborty S. et al (2006) studied on protein energy malnutrition (PEM) in children (0-6 years) in rural population of Jhansi district in the state of uttar Pradesh, the overall occurrence of PEM in under 6 year children was observed to be 67%, however it was

found to be significantly higher (80.9%) in the age group of 1-3 years as compared to other age groups.

3. Basanvanthappa B T (2008) stated that PEM is an important cause of infants and young children's morbidity and mortality. Stunted Physical growth, impaired mental growth, low work output, premature aging are few causes in the developing countries. Ahmad Ehtisham et al (2011) studied 642 children of 1-5 years in rural Aligarh to know their Nutritional status. The result revealed that out of 642, 362 (56.4%) were found to be suffering from PEM according to IAP classification.

4. Disaggregating data from NFHS-3 on stunting, wasting and underweight children under-three indicate that six states in india accounts for a majority of the underweight children in the country. These include Bihar, Chhattisgarh , Jharkhand ,Meghalaya ,and Uttar Pradesh. The percentage of underweight children in these states is more than the national average.

5. Ray, Sandip kumar et al. (2000) studies 316 pre school children in siliguri, the overall prevalence of malnutrition was 62.97% and degree of severe malnutrition was 6.65% among children aged 12-23 months of age and among females. Significant sex difference was observed in prevalence of severe degree of malnutrition, which was almost double in female children (8.47%) in comparison to male children (4.3%).The problem of malnutrition is linked with various socio-economic and demographic factors.

3.MATERIALS AND METHODS:

This methodology deals with the different aspects of materials and method adopted for conducting the study. It was a cross sectional study carried out in rural areas of Muzaffarpur District, Bihar. 200 children were selected randomly for the study. The study was designed to include all eligible aged 1-5 years old children. Mothers of children were interviewed to get the necessary information. A door to door visit was made in all selected household.

Weaning practices and food consumption of the subjects was assessed using a 3-day 24-hour Dietary recall method. . Information on socio-economic conditions, knowledge about the

weaning food and Dietary intake was obtained with pre-tested questionnaire. Indian council of Medical Research, Recommended Dietary Allowances (RDA-2010) was used to compare the nutrients intake by pre-school Children. Nutritional status was assessed by Indian Academy of Paediatrics (IAP) classification.

4. *RESULTS AND DISCUSSION*

Maximum number of families 64 percent had Medium size followed by 25 percent and 11 percent had large and small size respectively. It is evident that majority of the respondents 54.5 percent belonged to income group earning from 3501-5500. Improper Education and dearth of awareness among mothers results in poor health of a child. Majority of the mother 53.5 percent were illiterate. 52 percent mothers have no idea when to start weaning food. In the present study only 42 percent mothers started complementary feeding at recommended time i.e. 6 month of age. 57 percent mothers started supplementary feeding during 9-11months. Majority of 62.2 percent of subject had unsatisfactory knowledge about supplementary foods. Majority of the subject 56.4 percent gave adult diet. The average intake of energy and other nutrients was lower in all age groups as compared to RDA. More than half of the children were caloric deficient in rural areas of muzaffarpur District of Bihar . The intake of cereals and millets was 32.3 percent more than their respective RDA. Roots and tubers intake was double than their respective RDA.The intakes of pulses , green leafy vegetables, oils and fats, fleshy foods , milk and milk products were comparatively lower in pre-school children than their respective RDA. There was a mean deficit of daily energy intake of 235kcal.

Nutritional status of the children assessed by Indian Academy Of Paediatrics (IAP) Classification. Male and female children had equal distribution of malnutrition. So, there is no gender bias among the children in this community. The proportion of children under three years of age who are underweight in the present study is 42.5 percent .The present study showed that the prevalence of underweight children among boys and girls was 39.9 percent and 45.4 percent respectively. Out of 200 pre-school children 42% was normal , 35.5% having Mild Malnutrition followed by 17% Moderate Malnutrition, 4.5% Moderately severe Malnutrition and 1% from severe Malnutrition. The present study shows that 46 % of pre- school children was Normal, 34.5 % was Extremely wasted , 14.5% having clinical sign of oedema and 5% having both (wasting and oedema) clinical sign of PEM. Indu and Kumari Mamta (2010) studies the nutrients adequacy of home diets of preschoolers (1-6 years). A contradictory finding observed that in spite of adequate cereal consumption, children had been in deficient state of calorie intake. The overall Nutritional status in Rural Pre-school children of bihar is not satisfactory. As during these periods (1-5 years) the prevalence of malnutrition is higher and deficiency of certain micronutrients exits. The study reveals that supplementary feeding practices was not started at correct time and the food offered to pre-school children was not nutritious, which needs to be improved for future health prospects. Effective measures should be undertaken to improve their nutritional status and reduce the prevalence of Protein Energy Malnutrition.

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