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MALNUTRITION AMONG UNDER FIVE CHILDREN: A LITERATURE REVIEW

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Rajesh. P. Joseph[1], Jigisha Chaudhri[2],

[1]Assistant Professor, Department of pediatric Nursing
Sumandeep Nursing College
Sumandeep Vidyapeeth deemed to be university
Piparia, Waghodia, Vadodara- 391760, Gujarat, India

[2]Post graduate Nursing student, Department of Pediatric Nursing
Sumandeep Nursing College
Sumandeep Vidyapeeth deemed to be university
Piparia, Waghodia, Vadodara- 391760, Gujarat, India

Corresponding Author

Rajesh. P. Joseph,
Assistant Professor,
Sumandeep Nursing College
Sumandeep Vidyapeeth deemed to be university
Piparia, Waghodia, Vadodara- 391760, Gujarat, India
Email: rajesh.p.joseph@gmail.com

ABSTRACT

INTRODUCTION: Malnutrition is a dangerous condition that occurs when children's diet does not contain adequate nutrients to meet the daily need of their body.It is a universal problem and it occurs in developing, under developed and developed countries.

OBJECTIVE: This literature review was performed on malnutrition among under five children to identify the contributing factors towards the incidence rate, causes, its clinical features, different diagnostic approaches, management and prognosis.

METHODOLOGY: The databases such as Pub med, Cochrane library, PLoS medicine, online journal, Google scholar, Sodhganga were consulted for the study. Twenty-

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five(25) Scientific papers published between 2005-2018 on the subject of malnutrition among under five children were reviewed and discussed.

RESULTS AND DISCUSSION: The studies reviewed revealed that, the prevalence of malnutrition was higher in children with LBW than the children with normal birth-weights and require best nutritional intervention for the management.

CONCLUSION: Actions in terms of Prevention are required with respect to malnutrition among under five children. Awareness among parents and care givers was observed as a key factor of prevention. Additionally, providing ready to use therapeutic food (RUTF) as a nutritional intervention to the children was the recommendation stated by several investigators.

KEYWORDS: Malnutrition, Underfive children, Low birth weight, Therapeutic food

INTRODUCTION:

Malnutrition is defined as a cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth maintenance and specific foundations. Malnutrition is a wider term commonly used as an alternative to under nutrition. Malnutrition is a universal problem in the world and it occurs in developing, under developed and also in developed countries. Malnutrition comprises of four types: 1. under nutrition. 2. over nutrition. 3. Imbalance. 4. Specific deficiency.[1]

Severe acute malnutrition (SAM) is associated with increased severity of common infectious diseases, and death amongst children with severe acute malnutrition is almost always as a result of infection. The diagnosis and management of infection are often different in malnourished children versus well-nourished children (Kelsey D J Jones and James A Berkley).[2]

INCIDENCE

World Health Organization says that, about 6.6 million children were died in 2012, and the cause for the death among children was pneumonia, preterm birth complications,

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birth asphyxia, diarrhea and malaria. And the data indicates that about 45% of all child deaths were due to malnutrition.[3]

According to Karnataka scenario NFHS 3 (2005-2006) in Karnataka 43.7 % of the children are stunted, 17.6% are wasted and 37.6% are underweight.[4]According to Indian scenario, 20% of children are suffering from wasting due to acute under nutrition. And 43% of children are underweight and 48% are stunted due to chronic under nutrition. (Source NFHS 3, 2005-2006).[5]

CAUSES UNDERFIVE MALNUTRITION

Child related factors of malnutrition:

- Age
- Sex
- Birth Order
- Anthropometry
- Clinical symptoms and Nutritional intake

Factors related to the Mother:

- Mother's employment and work pattern
- Nutritional awareness

Other related Factors:

- Environmental factors
- Family income
- Caretakers other than the mother[6]

A study conducted among 182 malnourished and 189 well-nourished children and their mothers were participated in the study. Children aged 6–12 months old formed more than half of the malnourished children. The socio-demographic factors associated with malnutrition in multivariate analysis were age ≤24 months and a monthly family income of ≤200 GH Cedis (Edem M. A. Tette, Eric K. Sifah et.al).[7]

PREVALENCE OF MALNUTRITION

The prevalence of malnutrition is higher in children with LBW than the children with normal birth-weights. Higher education of mother, better household socio-economic conditions and prolonged birth intervals alone are not sufficient in bringing about substantial reductions in prevalence of child malnutrition. Interventions should be

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designed to reduce prevalence and for improvement of mother's education and socio-economic conditions (M. Shafiqur Rahman, Tamanna Howlader et.al.).[8]

CLINICAL PRESENTATION

Majority of cases of malnutrition are Marasmic type (62%) followed by Marasmic kwashiorkor (20%) and Kwashiorkor (18%). Case fatality is 40% in marasmik Kwashiorkor and 30% in Marasmus. Commonest clinical signs of malnutrition were hair changes (51%), edema (41.3%), conjunctival xerosis (25.13%) and moon face (23%) and hepatomegaly (9%).[9]

According to Alamgir Khan, Salahuddin Khan, Syed Zia-ul-Islam, et.al. TheSymptoms of malnutrition is-

- Unintentional weight loss
- Low body weight
- Lack of interest in eating and drinking
- Feeling of fatigue
- Feeling weakness
- Improper growth of Child.[10]

DIAGNOSTIC APPROACHES

Anthropometric measurements include height, weight, and waist circumference components are the most frequently used techniques for the assessment of growth and nutritional status among children (Fenfang li, lynne r. Wilkens, et.al).[11]

Malnutrition is associated with functional and cognitive impairment and difficulties eating. The MNA® detects risk of malnutrition before severe change in weight or serum proteins occurs (Y. Guigoz,).[12]

According to Dieneke Z. B. van Asselt, Marian A. E. van Bokhorst-de van der Schueren, et.al., the nutritional status of the child should be accessed through mini nutritional assessment. Nutritional interventions should be provided to malnourished children and also provide nutritional therapy and specific goals for the nutritional therapy and ways to achieve them were agreed upon. According to experts, malnutrition is best managed by

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a multidisciplinary team for whom roles and responsibilities were specified. At discharge written information about the nutritional problem, treatment plan and goals should be provided to the patient, caregiver and community health professionals.[13]

MANAGEMENT OF MALNUTRITION

Tarun Gera, Juan Pablo Pena-Rosas, Evelyn Boy-Mena, Harshpal S. Sachdev, et.al. found that, ready-to-use therapeutic foods was effective in managing under five malnutrition. They suggested higher recovery rates with greater number of calories provided and with ready-to-use therapeutic foods, in comparison to ready-to-use supplementary foods.[14]

The government of Bangladesh has developed inpatient and outpatient Community based management of acute malnutrition guidelines, and a policy offering free-of-charge health care for under-five children. (Camille Eric Kouam, Hélène Delisle,,et.al.).[15]

Mupenzi Mumbere, F. Katsuva Mbahweka & B. P. Furaha Nzanzu, et.al., found that classical therapeutic milk is better than cow milk to manage and prevent under five malnutrition.[16]

Training of facility-based health staff, government community workers, and ensuring uninterrupted supply of medicines and logistics to the functional facilities should be the immediate priorities and availability of ready-to-use therapeutic food (RUTF) is a critical component of community-based management for malnutrition (Santhia Ireen, Mohammad Jyoti Raihan,).[17]

According to Chloe Angood , Marie McGrath , Sagar Mehta , Martha Mwangome, et.at., The management of acute malnutrition in infants <6m is a critical area for child health and nutrition; prioritising research is important for making the biggest advances as quickly as possible. Our results suggest the need for a broad approach spanning basic epidemiology, health policies and systems, and more specialist interventions. Fundamental questions, such as how to define Severe acute malnutrition in infants <6m, are most urgent. Other priorities include research on how to integrate MAMI into

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existing programmes and practices; how to provide appropriate breastfeeding support; and how to assess treatment coverage. The 2013 WHO Severe acute malnutrition guidelines create an important stimulus to action.[18]

Anel Schoonees, Martani Lombardalso recommends that children with severe acute malnutrition home-based ready-to-use therapeutic food (RUTF) could be effective when compared to the standard diet, or who were treated with ready to use therapeutic food in different daily amounts or formulations.[19]

PROGNOIS

According to Lindsey M Lenters1, Kerri Wazny, et.al., Case fatality rates for inpatient treatment of Severe acute malnutrition using the WHO protocol ranged from 3.4% to 35%. Treatment at community level of Severe acute malnutrition, ready to use therapeutic food wasfound effective around 51% more likely to achieve nutritional recovery than the standard care group. For the treatment of Moderate acute malnutrition, children in the ready to use therapeutic food group were significantly more likely to recover and less likely to be non-responders than in the corn-soy blend food group. In both meta-analyses, weight gain in the intervention group was higher, and although statistically significant, these differences were small.[20]

CONCLUSION

The review conducted on under five malnutrition found that the problem is a leading factor of morbidity and mortality in children below five years of age. The literatures revealed that homemade ready to use therapeutic food is the best solution to prevent and treat malnutrition. Moreover, creating awareness among parents and care givers is an essential part of prevention of malnutrition.

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