Crusade against Malnutrition: Nutrition Education Program

KE ELIZABETH

From Department of Pediatrics, SAT Hospital, Govt. Medical College, Thiruvananthapuram, Kerala, India. drelizake@gmail.com

A holistic approach in assessment and plan for intervention in childhood malnutrition is the need of the hour. This is in the context of nutrition education program (NEP), undertaken under the National IAP action plan, 2015. In the crusade against malnutrition, an ABCDEFQ assessment scale is recommended, with aspects covering anthropometric, biochemical, clinical, dietary, ecological/epidemiological, functional parameters and quality of life. In the dietary assessment, a scoring system based on the ten interventions related to infant and young child feeding (IYCF) practices recommended by UNICEF and the food frequency table score are incorporated. In the evaluation of quality of life and plan for intervention, a tool called IMPACT (IAP Malnutrition Proactive Assessment: A Comprehensive Tool) is proposed.

Keywords: *Anthropometry, Protein energy malnutrition, Prevention.*

More than six decades ago, Gabriela Mistral, the Nobel Laureate from Chile wrote, "We are guilty of many errors and many faults, but our worst crime is abandoning the children, neglecting the fountain of life." India has marched more than six decades after independence, but the morbidity and mortality of infants and children are unacceptably high. It is right time that professionals like pediatricians empower the paramedics, Accredited Social Health Activist (ASHA) workers and community volunteers to accomplish the sustainable development goals. The truth is that the globe cannot achieve the goals without India conquering it [1].

Currently, in India, 22% of newborns are born low birth weight, 45% of children aged below three years are stunted and 23% are wasted [2], 58% of pregnant mothers and 31% of adolescent girls are anemic [3], only 41% babies are breast fed within an hour of birth with 26% exclusive breastfeeding during first six months [3], only 61% are fully immunized [4], and >15% girls are married before 18 years of age [3].

Malnutrition is a man-made disease; more often due to faulty nurture and not by nature. We have to take the lead in the crusade against protein energy malnutrition and micronutrient malnutrition, especially nutritional anemia. Hence, a nutrition education program (NEP) is being undertaken as the IAP Action Plan, 2015. By getting ourselves sensitized about the burden and assessment of malnutrition, we are expected to conquer more than 50% of the way ahead. Let us ensure basic steps like immunization, infant and young child feeding (IYCF) practices, growth monitoring and recording of weight on the 'mother and child protection' (MCP) cards.

A holistic assessment of malnutrition, preferably using the ABCDEFQ scale is proposed [5].

THE ABCDEFQ MALNUTRITION ASSESSMENT SCALE

Anthropometric Measurements (A)

Let us procure and maintain the right equipments like electronic scales, infantometers and start training our team. The community/ICDS is screening weight-for-age and let the severely underweight be referred with the label of failure to thrive (FTT) or malnutrition. Then, further evaluation has to be done using height-for-age for stunting, weight-for-height for wasting indicating chronic and acute malnutrition, respectively, and also for body mass index (BMI) among adolescents (*Table* **I**). IAP growth chart, which incorporates WHO growth charts till 5 years of age, is recommended for evaluation. Mid Upper Arm Circumference (MUAC) measurement is an age-independent simple tool for use among children 6-60 months of age.

Biochemical and Laboratory Parameters (B)

An exhaustive battery of investigations is not warranted in children with malnutrition. Complete blood counts, type and severity of anemia, presence of malarial parasite, serum protein, serum albumin, liver enzymes for associated fatty liver disease, blood urea, serum creatinine, sepsis screen and HIV ELISA are recommended before starting appropriate intervention.

Clinical Features (C)

Features of extreme wasting as evidenced by loose skin folds in axilla, groin, thigh, buttocks, chest, back and loss

Parameter	Interpretation	Remarks
Low weight-for-age	Underweight	Malnutrition/Syndromic/IUGR
Low height-for-age	Stunted	Chronic malnutrition/ Syndromic/Short stature
Low weight-for-height	Wasted	*Acute malnutrition
Low body mass index	Thinness	Chronic energy deficiency
MUAC < 11.5 cm	Severe acute malnutrition	During 6-60 months of age

*Weight-for-height < 70% or < –3 Z score indicates severe acute malnutrition (SAM) and Weight-for-height 70-80% or between –2 to –3 Z score indicates moderate acute malnutrition (MAM); MUAC: Mid-upper arm circumference.

of buccal pad of fat, nutritional edema as evidenced by bipedal edema, elicited by pitting on dorsum of foot using finger pressure, skin changes, hair changes and specific micronutrient deficiency signs should be recorded.

Dietary Evaluation (D)

For baseline information, a probe into the well-being *in utero* as evidenced by the birth weight, breastfeeding and complementary feeding practices and other IYCF components, including care of the mother during pregnancy and adolescent period is recommended. A 24-hour dietary recall is often done and intakes of energy, protein and micronutrients are compared with the RDA as recommended by ICMR [6]. However, this task is often very subjective. A three day midweek recall is rated better due to wide variation in eating and cooking habits during weekends within families. A scoring based on interventions related to IYCF practices [7] and a Food Frequency Table Scoring [8] are recommended.

IYCF score: it is done by scoring of the 10 desirable interventions related to IYCF practices as advocated by UNICEF with a maximum score of 20; higher the score, better the outcome (**Box** I).

Food Frequency Table Score: All food groups with standard servings as per the RDA, recommended by ICMR in the balanced diet for infants, children and adolescents [6] should be recorded and interpreted as follows:

- Daily (7 days/week)
- Frequently (4-6/week)
- Occasionally (1-3/week)
- Never

Ecological and Epidemiological Data (E)

The ecology of malnutrition is multifactorial ranging from illiteracy, poverty, ignorance, abrupt stoppage of breastfeeding, early or late complementary feeding, overdilution of feeds, wrong information, lack of

---

BOX 1. IYCF SCORE AS PER THE 10 INTERVENTIONS ADVOCATED BY UNICEF

1. Timely initiation of breast feeding within 1hour of birth
2. Exclusive breastfeeding during the first 6 mo of life.
3. Timely introduction of complementary foods at 6 mo.
4. Age-appropriate foods for children 6 mo to 2 y.
5. Hygienic complementary feeding practices.
6. Immunization, and bi-annual vitamin A supplementation with deworming.
7. Appropriate feeding for children during and after illness.
8. Therapeutic feeding for children with severe acute malnutrition.
9. Adequate nutrition and support for adolescent girls to prevent anemia.
10. Adequate nutrition and support for pregnant and breastfeeding mothers.

IYCF Score: Total Score 20 – Higher the score, Better the outcome; In each 10 interventions, the best practice is to given a score of 2 and less optimum practice 1 and 0 if not practising it; Item 9 and 10 refer to the respective mother's care; Any item not applicable shall be removed from the denominator and numerator while making the score %.

---

awareness, lack of environmental factors like safe drinking water, disposal of waste and excreta, air pollution, radiation exposure, and biologic hazards. Disease-specific morbidity, mortality, IMR, U5MR should also be considered as outcome of nutritional status in a community.

Functional Assessment (F)

Morphological assessment for >70% mutilated or unrepaired cells in buccal smear, delayed bone age on radiological assessment, night blindness due to vitamin A deficiency, and delayed gross motor milestones due to muscle wasting and hypotonia, should be assessed and recorded.

Quality of Life (Q)

This is the ultimate measure that decides prognosis for

TABLE II IAP MALNUTRITION PROACTIVE ASSESSMENT – A COMPREHENSIVE TOOL (IMPACT).

Item 1- Birthweight	Score
• VLBW	– 4
• LBW/very small	– 3
• Small	– 2
• Not known	– 1
• Normal or large	– 0

Item 2 -Underlying condition in the child that affects nutritional status

• To a great extent	– 4
• To a moderate extent	– 3
• To a mild extent	– 2
• Not known	– 1
• Nil	– 0

Item 3- Current nutritional intake

• Very poor <50% RDA	– 4
• Picky eating	– 3
• Poor eating 50-80% RDA	– 2
• Fair/Good, but not as per RDA	– 1
• Good and meets RDA	– 0

Item 4- Weight for height/severe wasting/nutritional edema

• < 70%/< 1st centile / severe wasting/ nutritional edema	– 8
• 70- 80%/ 1st-3rd centile	– 6
• 80-90%/ 3rd-5th centile	– 4
• Overweight/Obesity	– 2
• Normal	– 0

Item 5- Total score and risk stratification

• High risk	– 8 & above
• Medium risk	– 5 to –7
• Low risk	– 1 to –4
• No risk	– 0

Item 6- Plan for intervention

- High risk- Refer/admit
- Medium risk - Evaluate/admit
- Low risk- Counsel
- No risk- Praise the mother

growth, development and for life. As part of the National IAP Action Plan, 2015, Nutrition Education Program (NEP), a new scoring system – IMPACT-IAP Malnutrition Proactive Assessment – A Comprehensive Tool is proposed (***Table* II**). It has a score of 0-20 based on 6 items and suggests a broad plan of action for intervention based on the risk categorization.

The proposed NEP is expected to pave the way to a behavioral change communication in the most relevant field of child nutrition, and, early diagnosis and care of children with malnutrition.

REFERENCES

1. Elizabeth KE. India's progress towards achieving the targets set in the millennium development goals. J Trop Pediatr. 2008;54:287-90.
2. NFHS-3 (2005-6). The Demographic Health Survey Programs. Available from: *www.DHSprogram.com.* Accessed October 30, 2015.
3. District Level Household and Facility Survey (DLHS-4) 20012-13. National Data Sharing and Accessibility Policy (NDSAP).International Institute for Population Sciences. Available from: *http://www.iipsindia.org.* Accessed October 20, 2015.
4. India Coverage Evaluation Survey (CES) 2009. Available from:*www.indiawaterportal.org/.../national-factsheet-coverage-evaluation-survey.* Accessed October 20, 2015.
5. Elizabeth KE. Protein energy malnutrition and severe acute malnutrition. *In:* Elizabeth KE, editor. Nutrition and Child Development. Hyderabad: Paras Medical Publisher. 5th ed, 2015. p. 186-241.
6. Sasikeran B. Revised RDA for Indians, Expert group of ICMR. National Institute of Nutrition, 2010.
7. Essential Interventions - Interventions Related to Reproductive, Maternal, Newborn and Child, 2012 WHO/ Christopher Black, UNICEF/BANA2009-00924/Shehzad Available from: *www.who.int/pmnch/topics/* Accessed October 20, 2015.
8. Subar, AF, Midthune D, Kulldorff M, Brown CC, Thompson FE, Kipnis V, *et al*. Evaluation of alternative approaches to assign nutrient values to food groups in food frequency questionnaires. Am J Epidemiol. 2000;152:279-86.