Review Article

Malnutrition Challenge Therapeutic Strategy

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SUMMARY

Malnutrition is a broad term which describes nutritional related diseases caused by over and under nutrition, found in the hospitals or in famines. Therefore malnutrition can be categorized as over nutrition and obesity resulting into metabolic syndrome characterized by hyperglycemia, hypertension, dyslipidemia, hyperuricemia and decreased vitamin D in some cases. Whereas under nutrition with inflammation can be as a result of chronic illness, acute illness/injury or simply decreased dietary intake when there is no inflammation. The initial assessment can be done by simple clinical measures such as recording weight and BMI and serum albumin estimation. The adjusted nutrition plan during sickness involves assessment of calories requirement under the circumstances and then to use appropriate nutrition or premade nutrition formulas to meet the new requirements during disease or after surgery. The therapeutic strategy which also includes nutrition assessment and treatment may result in decrease in complications hence decreased hospital stay and cost of treatment having better hospital outcomes.

KEYWORDS: Malnutrition, Hypertension, Dyslipidemia, Hyperuricemia.

INTRODUCTION

The world faces unequal distribution of food and essential resources. Greater than 820 million people have not enough to eat.[1] However at the same time epidemic of overweight and obesity was reported in various regions of developed as well as developing.[1]

In Pakistan an alarmingly 24% of the population is undernourished due to insufficient food intake which makes them prone to acquire inflammatory and nutritional disorders. Approx. 37.5 million people in Pakistan are not receiving proper nourishment as recently estimated by the United Nations Food and Agriculture Organization (FAO) state.[2]

World Health Organization (WHO) Global health Observatory states more than 52% women of child bearing age are anemic and at least 10.5 % children under 5 year age of both genders are suffering from wasting and stunted growth.[2] Ministry of National Health Services, Aga Khan University and United Nations International Children's Fund (UNICEF) has jointly launched a survey in 2018 to find nutrition challenges.[3] Nutritional imbalance leads to malnutrition. Nutrients are vital for human beings and are essential for maintaining their functional capability. There is needed to take balance diet daily to fulfill their requirement.[1,3]

When one fasts, even for a day, he feels lack of energy by the end of the day, feels hungry and fatigued rendering him sluggish physically, emotionally and mentally. This is because his body adapts to the fasting state by reducing metabolic rate and activating different metabolic pathways to spare lean body mass. It is not advisable to lose proteins under any circumstances therefore conservation of proteins becomes body's priority. The trouble begins when the body starts loosing proteins resulting into loss of muscle a condition known as sarcopenia consecutively resulting into low immune regulatory outcomes due to hypo-proteinemia. Pulmonary edema is more likely to develop and be more severe due to the low plasma protein concentration.[4]

Malnutrition is broadly describes nutritional related disorders including the diseases triggered by over nutrition, to the extremes of under nutrition found in developed in developing countries.[4] Unbalanced nutrition with one or more micronutrient or mineral deficiencies are also malnutrition.[5] Therefore malnutrition can be categorized as over nutrition and obesity resulting into metabolic syndrome characterized by hyperglycemia, hypertension, dyslipidemia, hyperuricemia and decreased vitamin D in some cases. Whereas under nutrition with inflammation can be as a result of chronic illness, acute illness/ injury or simply decreased dietary intake when there is no inflammation. In acute, chronic and transitional care settings, recognition and treatment of adult under nutrition are a primary concern.[6] It typically occurs along a continuum of inadequate intake and increased requirements, impaired absorption, altered transport and altered nutrient utilization. The patient

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may also present with inflammation, hyper-metabolic and hyper-catabolic conditions resulting into loss of lean body mass.

American Society of Parenteral and Enteral Nutrition (A.S.P.E.N) with American Academy of Nutrition and Dietetics published a consensus statement for hospitalized patients describing Malnutrition as insufficient energy intake, weight loss, loss of subcutaneous mass, localized or generalized fluid accumulation and decreased functional status.[7] Therefore, malnutrition is a major contributor to increased morbidity and mortality, decreased function and quality of life, increased frequency and length of hospital stay and higher healthcare costs.[8]

A study conducted by Luo and co-workers on association between baseline levels of amino acids and their metabolites and clinical outcomes in malnourished, hospitalized older patients showed certain amino acids were associated with clinical and nutritional outcomes and could potentially be used in a predictive fashion.[9] The therapeutic strategy which also includes nutrition assessment and treatment may result in decrease in complications hence decreased hospital stay and cost of treatment having better hospital outcomes.

The adjusted nutrition plan during sickness involves assessment of calories requirement under the circumstances and then to use appropriate nutrition or premade nutrition formulas to meet the new requirements during disease or after surgery. The expertise of a trained dietitian/ nutritionist may play a vital role to supplement nutrition under changing metabolic demands. The evidence shows that an appropriate nutrition intervention results in speedy recovery, lesser complications, shorter hospital stay and hence reduced cost of treatment.[10,11]

Conflicts of Interest: None.

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Author's Contribution:

Dr. Syed Hafeezul Hassan	Concept of review and literature review. Manuscript writing and final version approval. Accountable for provided information.