

Clinical Management of Marasmus Protocol (Case Study)

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Abstract: According to the world health organization 49% of the 10.4 million deaths occurring in children younger than 5 years in developing countries are associated with PEM. The purpose of this study to identify the clinical management of the children affected with marasmus and understands of protocol treatment. **Methods and Material:** This study targeting health professionals at the hospitals and under five year marasmic children treatment processes. Fifty (50) samples were interview from whole professionals with different health specialists in malnourished children wards at Khartoum-Bahri Teaching Hospital and Ahmed Qassem hospital-Sudan working staffs. The tool used in the study was questionnaire. **Result:** (76%) of the respondent confirm the major factors that causes marasmus were parents awareness and lack of balance diet. (90%) of the respondent agree the national and international treatment protocols have been applying at the hospitals. (90%) were sure that undergo enough treatment and flow up for marasmic child at the hospitals. (56%) agree about the number of children with marasmus that attended to the hospitals in the past five years increases year after year. 66% were revealed that suitable treatment for children with marasmus are balance diet, vitamins supplementation and ORS (oral dehydration solutions) **Conclusion:** Both hospitals have been use national and international treatment protocols. All health professionals have being working continuously while affected children come to hospitals increase year after year.

Keywords: Marasmus, Child health, Balance diet, Protocol, Sudan

1. Introduction

Marasmus is a form of severe malnutrition characterized by energy deficiency. A child with marasmus looks emaciated. Body weight is reduced to less than 60% of the normal (expected) body weight for the age. (1)

1.1. History of Marasmus

The protein-calorie malnutrition in infancy must have been common in most of the world for centuries, but attention has only been focused upon it within the last 50th years.

Marasmus was not uncommon in the industrial towns of Europe and North

Protein Calorie Malnutrition is the most common type of nutritional deficiency in hospitalized patients and is manifested by depletion of tissue, energy stores and body protein.

Malnourished patient have prolonged hospitalization and are at a higher risk of developing complication during therapy. These nutrition-associated complications are the result of organ wasting and functional impairment and include weakness decreased wound healing hepatic metabolism of drugs, and infections. (2)

Diets and deficiencies may vary considerably between different geographical regions and even within a country. Marasmus is typically observed in infants who are breastfeeding when the amount of milk is markedly reduced or more frequently, in those who are artificially fed. (3)

1.2. Factors and Causes of Marasmus

Good food in adequate quantities is important for the preservation of health. Whenever there is shortage of the

former the individual might suffer from variable degrees of malnutrition, which is usually well manifested in infancy and childhood.

Also poverty, ignorance, drought, war, earthquakes, and floods were suffered from; either collectively or in party in most civilization of the world at one time or the other. These factors usually associated with food shortage and starvation.

Immediate and underlying causes are engaged in the occurrence of malnutrition. Immediate causes include inadequate dietary intake and illness, while the underlying causes include: inadequate excess to food in the household, insufficient health services and healthy-full-environment". Famines, wars and other catastrophes are responsible for only tiny part of the world wide malnutrition crises, but such emergencies often result in the severest forms of malnutrition. (4) (5)

1.3. Global Situation

The latest prevalence estimates of stunting and underweight among children under-five years of age worldwide suggest that there have been decreases since 1990. While progress has been made, it is insufficient—leaving millions of children at risk of lower chances for survival.

The current trends continue United Nations (UN) regional projections for 2015 indicate that the goal of halving the 1990 underweight prevalence levels is unlikely to be achieved on a global level or in all developing countries.

Estimates from 2011 suggest stunting prevalence reductions of more than 40% in Asia and Latin America and the Caribbean since 1990. Reductions in Africa and Oceania have been more modest (10-15%). During the same period, reductions in the prevalence of underweight were 56% in Latin America and the Caribbean. (6)

Childhood under-nutrition is an underlying cause of 35 percent of deaths among children under five years old in the developing world. According to the 2008 Lancet Series on Maternal and Child Under-nutrition, Severe Acute Malnutrition (SAM) is one of the most important contributing causes of childhood mortality. An estimated 19 million children under five suffer from SAM, with half a million dying directly because of SAM each year. These numbers do not include children suffering from bilateral pitting edema, which is the most lethal form of acute malnutrition (7).

Sudan has persistent elevated levels of under-nutrition. Poor health conditions, suboptimal maternal and child feeding and care practices, and food insecurity, compounded by high rates of poverty and illiteracy, play a complex and interrelated role as contributing factors to the widespread under nutrition. Although rates vary significantly between states, nationally the global acute malnutrition (GAM) is 14.8 percent (< -2 WFH z-score), just below internationally recognized thresholds for a nutrition emergency. (8).

Underscoring pervasive, long-term under nutrition and morbidity throughout the country, other nutrition indicators are also poor: 31 percent of children under age five are underweight (< -2 WFA z-score) and 32.5 percent are stunted (< -2 HFA z-score). While data are limited, available information from localized surveys suggests that micronutrient deficiencies are also prevalent. According to the majority of nutrition surveys, the greatest risk of under nutrition is among children 6-29 months, indicating that sustained efforts to address the nutrition needs in this age group are critical. (9)(10).

Tens of children under the age of five remain at risk of marasmus and malnutrition-related death in Sudan, despite temporary improvements in the food security situation that were released today by the Integrated Food Security Phase Classification (IPC) group of experts. (11)

Slow recovery among survivors has been shown to be associated with insufficient provision of energy and nutrients necessary for rapid catch-up growth. Centers that have changed their treatment practices, however, have drastically reduced their case fatality rates. (12).

Brazil, implementation of the World Health Organization (WHO) guidelines for management of severe malnutrition substantially increased rates of recovery. These experiences suggest that evaluation of clinical practice is important. (13)

1.4 Treatment of Marasmus

Although there is no huge measurable difference between all malnutrition diseases as hospitals treatment uses that only depend on the severity level of the affected children. Marasmus is usually treated by adding vitamin B and following a nutritious diet in general. (14).

Treatment is designed to provide adequate nutrition, restore normal body composition, and cure the condition that caused the deficiency. Tube feeding or intravenous feeding is used

to supply nutrients to patients who cannot or will not eat protein-rich foods. (15)

1.5 Clinical Management

The clinical management of severely malnourished children can be rapidly assessed to highlight areas for improvement. Involving staff in the assessment process has led to their active involvement in improving the management of malnourished children in their hospitals. (16)

A review of treatment practices worldwide found that many health services use discredited practices and that staffs are unfamiliar with modern, effective guidelines for the management of severe malnutrition.' Inappropriate practices associated with high mortality include overuse of intravenous (IV) fluids for rehydration, inadequate feeding leading to hypoglycemia and hypothermia, untreated infections, and failure to correct electrolyte and micronutrient deficiencies.

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1.6. Role of Health Team Professionals

The health care team comprises all the health care professionals that work with a given patient or patients and their families toward the common goal of patient health. These include medical part of team (physician, nurse, dietitian, physical therapist, and pharmacist).

- a) **The physician:** generally the person with most broad-based knowledge related to patient health care is the medical doctor (MD), otherwise refer to as the physician. The physician knows the patient medical history and has general understanding of the relationship between diseases states and other health concerns.
- b) **The nurse:** the nurse generally has the most contact with the individual patients and their families the nurse can provide other members the health care team. With good insight into patient needs because of this in depth patients contact. Ongoing assessment and monitoring of patient eating habits and health status are important roles of the nurse.
- c) **The physical therapist:** assisting in promoting mobility and physical movement to control pain is part of the role of the physical therapist (PT). a physical therapist may be involved with helping a person enhance capabilities that have been impaired due to illness or trauma. The PT may promote exercise that is appropriate for individual to promote weigh loss on increase muscle strength.
- d) **The pathologist:** the professional to consult when assessing the seemingly simple act of swallowing is the speech the pathologist. Swallowing series of interrelated steps can be seriously impaired due to stroke or other neurological damage.
- e) **The pharmacist:** the registered pharmacist is responsible for preparing the nutritional solutions that the physician orders these solutions are administered through veins or enteral routes.

- f) **The registered dietitian:** the registered dietitian or RD is the health care professional best qualified to interpret the science of how foods is used by the body in health and disease states and to evaluate how changes in the diet can improve the patient health status.
- g) **The nutritionist:** a nutritionist is educator, as well as a counselor, who usually works in a public health setting and who typically has a at least a bachelor's degree in nutrition. The legal credential certified or licensed nutritionist is used in some states to help indicate qualified nutritionists. (17) (18).

2. Result and Discussion

Table 1: Gender Characteristics

Characteristics	Frequency	%
Gender		
Male	10	20%
Female	40	80%
Total	50	100%
Age		
18-25	19	38%
26-45	28	56%
46-65	3	6%
Total	50	100%
Occupation		
Doctor	24	48%
Nutritionist	7	14%
Nurse	19	38%
Other	0	0%
Total	50	100%

Table 1 shows gender characteristic. 80% were female. 56% of the age characteristics are 25-45 years. Occupational analyses show that 48% are doctors. This due to in the hospitals the doctors workers are more than other health professional workers.

Table 2: Factors that causes marasmus

Respond	Frequency	Percent
Parents awareness	15	30%
Economic	9	18%
Culture	1	2%
Awareness +economic +culture	25	50%
Total	50	100%

Table (2) shows major factors that causes marasmus. The study revealed that parent awareness with balance diet, economic and cultural factors represent 50% as causes of marasmus.

Table 3: Degree of Marasmus in the hospital

Respond	Frequency	%
low	4	8%
Median	27	54%
Sever	19	38%
Total	50	100%

Table (3) shows that process of severe mal-nutrition treatment in hospitals, median degree represents 54%.

Table 4: Apply of National and International protocol

Respond	Frequency	%
Agree	45	90%
Disagree	5	10%
Total	50	100%

Table 4 shows the international treatment protocols to child with marasmus, apply in both hospitals. 90% of respondent professionals agreed that international treatment protocols applied.

Table 5: Enough Treatment and Flow up

Respond	Frequency	%
Agree	45	90%
Disagree	5	10%
Total	50	100%

Table 5. Represent the opinion of the respondent about the enough treatment and flow up in hospitals for the marasmic child. 70% of the respondents agreed that treatment and flow up are enough in the hospital. This means in the hospitals treatment and flow up are high.

Table 6: Signs and symptoms are appear at first visit to the hospital

Respond	Frequency	%
Agree	38	76%
Strong agree	10	20%
Disagree	2	4%
Strong Disagree	0	0%
Total	50	100%

Table 6. Shows the clinical feature module of signs and symptoms are clear identified at the first visit to the hospital. 76% of the respondents are agreeing. The study revealed that the clinical feature module of signs and symptoms with marasmus malnourished child is clear on the first visit.

Table 7: Marasmus caused by fewer food intake of the child

Respond	Frequency	%
Agree	26	52%
Strong agree	20	40%
Disagree	3	6%
Strong disagree	1	2%
Total	50	100%

Table 7. Shows the opinion of the respondents about the fewer intakes is main cause of marasmus. Only 52% of the health professionals agreed that marasmus caused by fewer intakes of food than their needs.

Table 8: Children assessment at the hospitals

Respond	Frequency	%
Under weight	49	98%
Above weight	1	2%
Normal weight	0	0%
Total	50	100%

Table 8. Shows the assessment of children with marasmus at admitted to the hospitals. Always 98% of the children admitted to the hospitals are under weight.

Table 9: Poverty affects the children with marasmus

Respond	Frequency	%
Greatly	47	94%
Slightly	1	2%
Moderately	2	4%
Not at all	0	0%
Total	50	100%

Table 9. Represent the opinion of the respondents about the affects of poverty on the children with marasmus. 94% of the health professional at the hospitals are agree that main reason and affect on health of the child with marasmus is poverty.

Table 10: Marasmic children that came to the hospital in the past five years

Respond	Frequency	%
Increase yearly	28	56%
Decrease yearly	10	20%
Moderate increase	11	22%
Randomly	1	2%
Total	50	100%

Table 10. Shows the number of children with marasmus admits to the hospital. 56% of the professionals agree that the number of children with marasmus admit to hospital in the past five years increase year after year.

Table 11: Problems faced the health professionals in the hospital

Respond	Frequency	%
mother	9	18%
father	2	4%
Both of them	34	68%
None of them	5	10%
Total	50	100%

Table 11. Explains, problems faced the health professionals in hospitals. 68% the professionals said that problems faced in clinical management mainly from parents.

Table 12: Suitable treatment for the children's with marasmus in hospital

Respond	Frequency	%
Balance diet and liquid	17	34%
Balance diet , liquid+ Drug	33	66%
Drug only	0	0%
ORS (oral dehydration solutions)	0	0%
Total	50	100%

Table 12. Shows suitable treatment for the children's with marasmus at the hospitals.

The suitable treatment that uses in hospitals are Balance diet, liquid supply, tablets and ORS (oral dehydration solutions) those represents 66%.

Table 13: Health professional recommendations to the parents.

Recommendation for treatment	Frequency	%
Healthy food	20	40%
Hygiene	1	2%
Children care	12	24%
Periodic diagnose	1	2%
Health awareness	9	18%
Breastfeeding	2	4%
other	5	10%
Total	50	100%

Table No. 13. Show the health professional recommendation to the parent. 40% advised Healthy food as best way to avoid marasmus. The second advice to the parent 24% is child care.

3. Conclusions

Both hospitals have been use national and international treatment protocols, although the processes of marasmus treatment in hospitals are good. All health professionals have being working continuously while affected children come in hospitals increase year after year.

4. Recommendations

- 1) Increase parent's awareness about balance and healthy food.
- 2) Researches to study the causes for increase the number of children admitted to the hospitals.

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