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"RETROSPECTIVE STUDY OF SEVERE ACUTE MALNUTRITION (SAM) AT MALNUTRITION TREATMENT CENTRE (MTC) OF AJMER, RAJASTHAN"

Paediatrics

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ABSTRACT

Aims of study: The objective of our study is retrospective evaluation of the data to assess the effectiveness of MTC in providing medical and nutritional rehabilitation care for children with SAM in our MTC.

Results: Out of the 1047 children of age 6-60 months with SAM, 72.21% had a weight -for-height/length (WH/L) Z score below -3SD, 64.85% had mid upper arm circumference (MUAC) < 11.5 cm, 12.03% had bipedal oedema and 53.75% had both WH/L Z score below -3SD and MUAC <11.5 cm. 76.40% were discharged from MTC, however recovered rate was 11.65%.

Conclusions: Survival of children with SAM in our study was good (76.40%) however recovery rate was low (11.65%). The average weight gain of children with SAM was 8.06 gm/kg/day (±12.01gm) in our study and average duration of stay was 8.67 days (+_6.11).

KEYWORDS

Anthropometric profile, MTC, SAM, Outcome

Introduction:

SAM is a major socio-economic and clinical problem in developing countries. Globally, 17.3 million children, or 2.6 % of the pre-school aged children, were severely wasted in 2012. [1] Third National Family Health Survey (NFHS-3, 2005-2006) of India data indicates that 43 % were underweight, 48 % were stunted, 20 % were wasted and 7.9 % had severe wasting (as per WHO child growth standards)[2]. Therefore, at any point in time, in India an average of about eight million children less than 5 years are severely wasted[3]. According NFHS-3, in Rajasthan less than 3 years of age 20% children were wasted, 40.1 % children were stunted, 36.8 % were under weight.[2]

Aims of study:

The objective of our study is retrospective evaluation of the data to assess the effectiveness of MTC in providing medical and nutritional rehabilitation care for children with SAM in our MTC.

Methods:

For the purpose of this evaluation, we retrieved the data of all children with SAM admitted from February 2009 to 30 June 2016 to the MTC of JLN Medical College and Hospital Ajmer, Rajasthan. Ethical Committee approval was taken.

The identification of children with SAM was done by paediatrician in OPD who visit to hospital for their medical problem and in IPD, who are admitted for other severe clinical condition. Before admission to MTC the weight, height/length and MUAC of children 6-60 months old were measured, and the presence of bilateral pitting oedema was assessed. All children with bilateral pitting oedema or MUAC <11.5 cm or WH/L Z score below -3 SD of WHO Child Growth Standards were admitted to MTC.[4,5,6,7] Details of all children regarding their particulars were recorded. SAM was defined as per WHO recommendation by presence of bilateral pitting oedema or presence of severe wasting (MUAC below 11.5 cm or WH/L Z score below -3SD of WHO Child Growth Standard).[5,6]

At the MTC, doctor take detailed history and conducted a thorough clinical examination to detect presence of medical complications (lethargy/coma, respiratory distress, shock, dehydration, hypothermia, fever and severe anaemia). All these data were recorded in prescribed UNICEF register. They were investigated and managed as per WHO guidelines for children with SAM[4,5,6,7] Children with SAM were discharged from MTC when they met the following criteria (1) weight gain 15% or more (2) the child was active and alert, (3) no signs of bilateral oedema (4) no signs & symptoms of infection (5) child received age appropriate all vaccine (6) the child was being fed 120-150 kcal/kg /day (7) mother or other family member know the care and feeding of the discharged child required at home.

Some children who met the above criteria but does not gains weight 15 % or more but request for discharge because of their family problem were also discharged.

Results:

Out of 1292 children with SAM who were admitted in MTC, 1047 children of age 6-60 months old were enrolled in this study. 756 (72.21%) had WH/L Z score below -3SD, 679 (64.85%) had MUAC < 11.5 cm, 563 (53.75%) had both WH/L Z-score below -3SD and MUAC <11.5 cm and 126 (12.03%) had bipedal oedema. 800 (76.40%) were discharged however recovered and discharged rate was 11.65%. 246 (23.49%) were defaulter (absconded or left against medical advice) from MTC. Average duration of hospital stay and average weight gain was 8.67 days (+_6.11) and 8.06 gm/kg/day (+_12.01gm) respectively. 424 (53%) children with SAM who discharged from MTC were still in <-3SD Z score.

Discussion:

Primary objective of MTC is to reduce mortality and morbidity from SAM either directly or due to complication. Anthropometric profile of 1047 children in our study were 72.21 % had WH/L Z score < – 3 SD, 64.85 % had MUAC < 11.5 cm, bilateral pedal oedema in 12.03% and 53.75 % children had both WH/L Z score < -3SD and MUAC < 11.5 cm. Singh K et al also studied 1,130 children with SAM showing severe wasting in 89.7%, MUAC <11.5 cm in 80.7%, bilateral pedal edema in 8.1% and 70.7% had both WH/L Z score < -3SD and MUAC <11.5 cm. Children with SAM having WH/L Z score < -3SD and MUAC <11.5 cm are less than Singh K et al studies while pedal oedema were more in our study[8] 11.65% children were fully recovered and discharged. The proportion of non-recovered discharged children was high (64.75%) because their weight gain is less than 15 % as per WHO criteria. Singh K et al had recovered and discharged rate of 17.8%, non recovered and discharged rate of 30.6% in complicated SAM that shows recovery rate is low[8] Saaka M et al also had 49.1% defaulter while in our study defaulter were 23.49%[9] In our study non recovered and discharged rate was 64% because parents request discharge of their child due to family problems. The average weight gain of children in our centre is comparable with the national and international studies on minimum average weight gain (8 g/kg body weight/day) for program that treat children with SAM[7,10] The average weight gain of children(SD) with SAM was 8.06 gm/kg/day (±12.01gm) in our study. Mamidi et al had the mean rate of weight gain calculated for the total duration of the hospital stay in their entire sample was 5g/kg/day, 8% of the children had no weight gain, 44% of the children had poor catch up growth (<5g/kg/day) and 12% had rapid catch-up growth (>10g/kg/day)[11]]. 23.49% defaulter children have average duration of stay of 6.60 days and average weight gain 5.74gm/kg/day. The proportion of defaulter children was significantly higher than the international study but it is significantly lower than other Indian study[8] Average duration of stay(SD) was 8.67 days(±6.11) and average weight gain(SD) was 8.06 gm/kg/day(±12.01) which

were better than other national studies[11]. Percentage of non-recovered discharged children was 64.75% that indicate they need some intervention to prolong their hospital stay or modification in diet. Children with SAM who were discharged but non recovered have average duration of stay(SD) was 8.727 days(±5.86) and average weight gain(SD) was 6.08 gm/kg/day(±9.05).Some global evidence shows that good quality ready-to-use therapeutic foods (RUTF) are effective for catch up growth in children with SAM [12,13,14,15] all references must be in superscript. But before their use in Indian children they should be studied at mass level and full- fill the WHO criteria. The percentage of discharged children with SAM in our centre was 76.40% which was significantly higher than other national treatment centre, whose discharged rate was 48.4% that indicate high survival rate of SAM children with complication in our study[8] Proportion of the defaulter children (23.49%) was slightly higher than national and international standard (<15%) [8,10]High defaulter rates have been also reported by other facility-based intervention for children with SAM in India[9]

Conclusion

Survival of children with SAM in our study was good however recovery rate (11.65%) was low. Percentage of non-recovered discharged children was 64.75% that indicate they need some intervention to prolong their hospital stay. The average weight gain of children with SAM was 8.06 gm/kg/day (±12.01gm) in our study that is comparable with the national and international studies on minimum average weight gain (8 g/kg body weight/day) for program that treat children with SAM. Average duration of stay was 8.67 days which was shorter than other national studies.

Table1: Characteristics of the studied children with SAM (6 to 60 months)

Total No - 1047	No	Percent
Gender		
Male	533	50.9
Female	514	49.1
Age Group		
6 to 12 Month	546	52.2
> 12 to 24 Months	376	35.9
>24 to 60 Month	125	11.9
Caste		
SC	337	32.2
OBC	370	35.3
ST	79	7.5
Others	261	25.0
Types of malnutrition		
Severe Wasting (<-3SD)	756	72.2
MUAC <11.5 cm	679	65.9
MUAC < 11.5 cm & WH/L Z score <-3SD (both)	563	53.8
Bipedal Oedema	126	12.0

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