



Impact of Anthropometric Indices on Outcome Following Traumatic Brain Injury

Manju Dhandapani M.Sc., M.A; SS Dhandapani M.Ch.; M Agarwal; A Chutani; BS Sharma; A K Mahapatra
All India Institute of Medical Sciences, New Delhi

Introduction

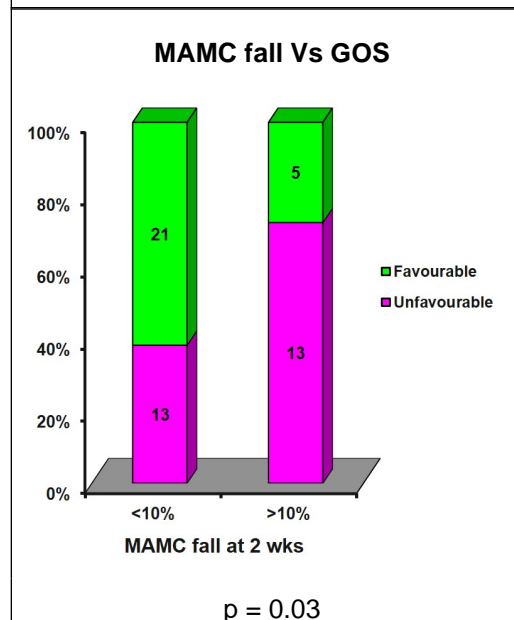
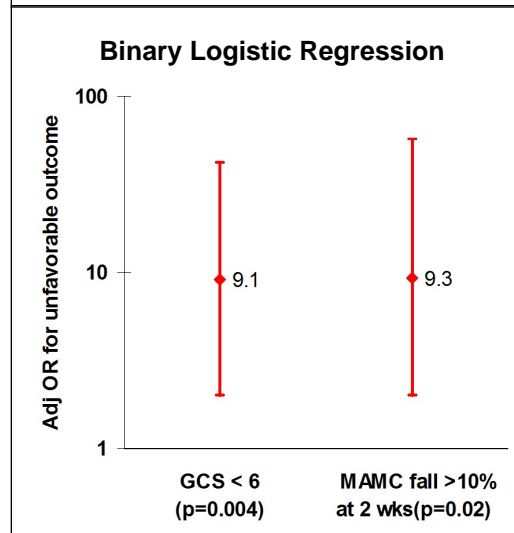
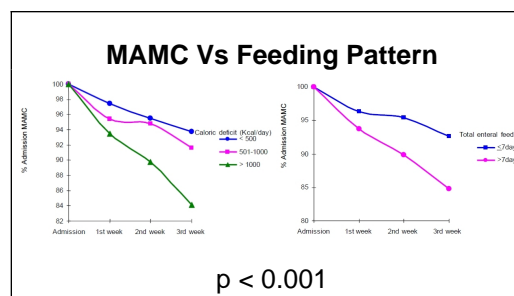
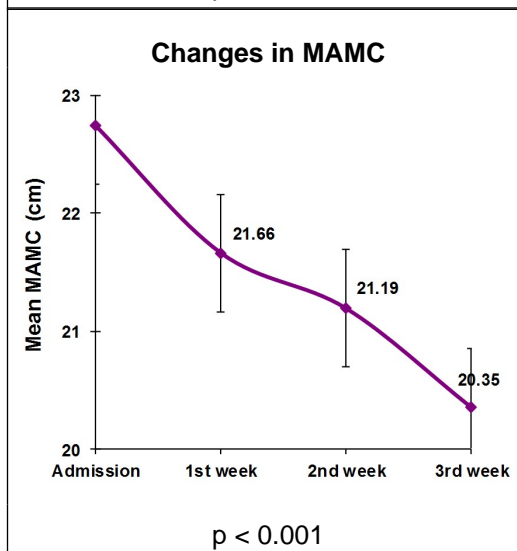
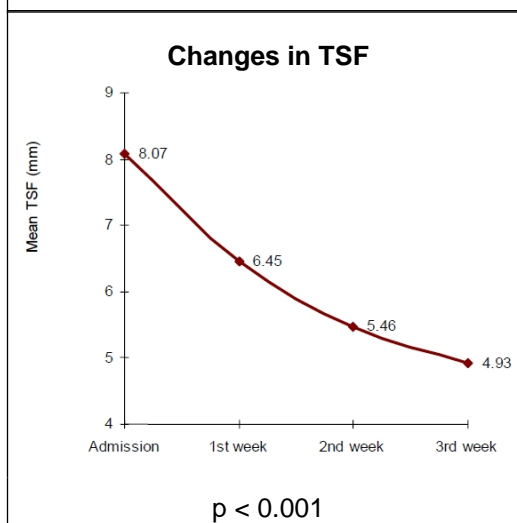
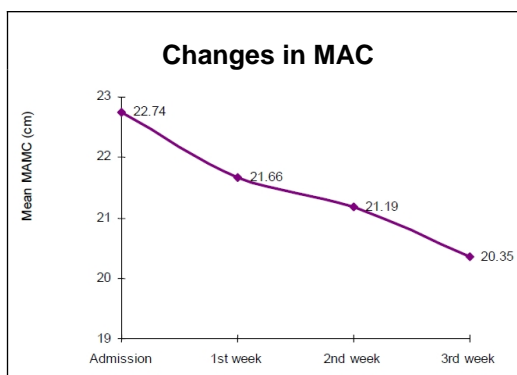
Nutritional demand after TBI is increased due to hypermetabolic response. The present study was undertaken to assess anthropometric indices in patients for 21 days after TBI and their influence on outcome.

Methods

Patients in age group 20-60, admitted within 24 hours of TBI with GCS 4-8, with no serious systemic injury were prospectively studied for demographics, clinico-radiological features, laboratory parameters, mid arm circumference (MAC), mid arm muscle circumference (MAMC), triceps skin fold thickness (TSF), and their weekly changes till 21 days, in relation to other factors and neurological outcome at 3 months. SPSS was used for statistical analysis.

Results

There were a total of 67 patients with anthropometric measurements, showing significant fall at every week. The percentage fall at 3 weeks for MAC, MAMC and TSF were 14%, 10%, and 37% respectively. The percentage of fall in MAMC was the earliest, and was significantly greater in patients with surgical intervention, tracheostomy, prolonged fever, delayed enteral feeding, and greater caloric deficit. The percentage of fall in MAC was significantly greater in patients who had tracheostomy, prolonged fever, delayed enteral feeding, and greater caloric deficit.



Unfavorable outcome was significantly more frequent in patients who had at least 15% fall in MAC (85.7% Vs 41.9%, $p=0.03$), or 10% fall in MAMC (68.8% Vs 38.2%, $p=0.04$) at 2 weeks, compared to others. Fall in TSF had no significant association with outcome at three months. Other factors with significant impact on outcome were age and GCS. Patients with at least 10% fall in MAMC had significantly lower values of 24 hour urine creatinine ($p=0.04$), confirming the validity of MAMC fall in detecting somatic protein depletion. In multivariate analysis, MAMC fall had significant independent association with unfavorable outcome.

Conclusions

Bedside anthropometry is efficient in identifying patients with nutrition depletion with significant influence on outcome at 3 months.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of anthropometric nutritional assessment in patients with TBI, 2) Discuss the role of various anthropometric indices, 3) Identify the prognostic importance of anthropometric indices on outcome after TBI

References

Dhandapani SS, Manju D, Agarwal M, et al. Mid arm muscle circumference monitoring in severe head injury. The Indian Journal of Neurotrauma 2006; 3: 107-11.