Impact of Nutrition Therapy using High Protein Concentration Supplements at Low Feed Volumes on Serum Total Protein and Albumin Levels of Patients with Severe Burns

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ABSTRACT

Severe burns lead to excessive loss of fluids and albumin resulting in hypoalbuminemia. Protein requirement is doubled due to catabolism, while the patients' appetite diminishes substantially. Aggressive nutrition therapy becomes a requisite for rapid recovery. Impact of Nutrition Therapy, a combination of high protein concentration supplements using lower feeding volumes, on serum proteins, albumin, globulin, blood haemoglobin and the Length Of Hospital Stay (LOHS) of severely burned patients was assessed framing retrospective and prospective cross sectional study design. Adult patients (N=17) with second and third degree burns covering ≥ 20% of their Total Body Surface Area (TBSA) were categorized into two groups, Group A and Group B receiving "four supplements in volumes of 150 - 200 ml /hour (15 hrs/day)" (Group A) and "a combination of protein dense ten supplements in volumes ≤100 - 125 ml/hr (15 hrs/day)" (Group B). LOHS, serum total proteins, albumin, globulin and hemoglobin of the groups were statistically compared. Mean Total Body Surface Area (TBSA) of burns was observed to be 39.68 +/-11.98 % (range 20-62%) for the subjects with the average age of 37.82 +/- 13.26. Group B patients showed significantly lower LOHS ($p<0.01$) and greater improvement in serum total proteins ($p<0.01$), albumin ($p<0.01$) and globulin ($p<0.05$) when compared to Group A. In Group A patients, the need for Albumin and Parenteral infusions was 3.4 times more frequent than group B. Protein dense supplements with lower volumes are more effective in improving serum Albumin levels of the patients with severe burns contributing to rapid healing and shorter LOHS.

Key words: Burns, hypoalbuminemia, LOHS, TBSA

INTRODUCTION

Burn injuries, one among the most devastating of all the injuries is a major global public health problem, accounting for an estimated 2, 65, 000 deaths annually, as per WHO [1]. In India alone, over one crore people are moderately or severely burnt every year [1].

Non-fatal burns are a leading cause of morbidity, including prolonged hospitalization, disfigurement and disability. Once a burn injury has occurred it is one of the most severe forms of injury, inducing a complex cascade of responses including inflammatory, hypermetabolic, immune, as well as infectious responses [2].

Albumin is the main protein synthesized by the liver and is the primary serum binding protein responsible for the transport of various substances in the circulation including fatty