

Dr V N Acharya Memorial Oration

Quality Dialysis for Preservation of Nutritional Status

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Introduction

Adequate dialysis either hemodialysis (HD) or peritoneal dialysis is essential for the well being of the patients, especially to maintain the best nutritional status. Maintenance of Residual renal function by avoiding hypotension, nephro toxic agents, alternative medicine improves appetite and the role of the skilled nutritionist is important. In developing countries where 75% patients pay from their pocket for dialysis increasing dose of dialysis will be met with enormous resistance from the patients.

Malnutrition is commonly seen in dialysis patients and is a powerful predictor of morbidity and mortality. Although much progress has been made in recent years in identifying the causes and pathogenesis of malnutrition, no consensus has been reached concerning its management. Malnutrition still remains a great challenge for nephrologists and dieticians in this millennium.

Early nutritional assessment and treatment leads to overall better outcome, better quality of life and increased longevity. Over the past few years, the process of nutritional assessment and management of dialysis patients has been presented with new challenge regarding validity and reliability. Nutrition assessment helps the dietitian to evaluate patient's nutritional status and the extent of any malnutrition. Data gathered will provide the objective basis for recommendations and evaluation of care, estimation of functional status, dietary intake and body composition compared to normal populations. Body composition reflects calorie and protein needs and hence lean body mass (LBM) and Fat mass. Baseline body composition and biochemical markers determine if nutritional support is effective (NKF/DOQI).

Protein energy wasting (PEW) is strong predictors of mortality among dialysis patients. Although several biochemical and anthropometric measurements correlate with nutritional status, there is not a single measurement that provides complete and unambiguous assessment. We recommend relying on a panel of nutritional markers rather than any one particular tool. It is advisable to assess the nutritional status at least every 3 months using anthropometric measures including Body composition measures (BCM), Malnutrition Inflammation Score (MIS), Serum albumin, serum iron and total iron binding capacity

(TIBC).

The following study was carried out at Madras Medical Mission on the nutrition management for CAPD and HD patients. The number of patients who are undergoing hemodialysis are 32(weekly thrice) and 55(weekly twice) - 4 hours per dialysis.

Patients and Methodology:

Peritoneal Dialysis: Forty CAPD patients were assessed for their nutritional status at the initiation of therapy. Nutritional Assessment was done using Anthropometric assessment including body composition analysis, bio chemical observations such as serum albumin, hemoglobin, serum iron, total iron binding capacity, diet history, malnutrition inflammation score (MIS). Based on the nutritional status patients were prescribed and educated on nutritional needs as per the National Kidney Foundation's requirements. Nutritional assessment was repeated after three months of period and the changes were studied.

Results and discussions

During the initial assessment the malnutrition inflammation score(MIS) revealed 32% of the CAPD population were well nourished, 54% mild to moderately and 13% severely malnourished. After 3 months of nutrition therapy the MIS showed 34 % were well nourished 60 % were mild to moderately malnourished and 6% were severely malnourished. This is evident by the increase in the average protein mass (15.27 to 22.8 kg), skeletal muscle mass (21.6 to 22.8 kg), Body cell mass (26 to 26.8), mid arm muscle circumference (21.9 to 24). There was no increase in serum albumin levels with the average of 3.2 g/dl.

Hemodialysis:

Ninety chronic kidney disease patients on haemodialysis were assessed for their nutritional status at the initiation of therapy. Nutritional Assessment was done using anthropometric assessment including body composition analysis, bio chemical observations such as serum albumin, hemoglobin, serum iron, total iron binding capacity, diet history, malnutrition inflammation score (MIS). Based on the nutritional status Patients were prescribed and educated on nutritional needs as per the National Kidney foundation's requirements. Nutritional assessment was repeated at three months interval and the changes were studied.

Results and Discussion

MIS showed decline in the severely malnourished group from the initial assessment (25.8%) to 4th follow up assessment (6.3%), well nourished group increased from 8.98% to 22.7%. There was a marked increase in the average protein mass from 7.69 kgs to 8.3kgs, mineral mass 2.9kgs to 3.12 kgs, soft lean mass from 37.22 to 40.79 kgs, skeletal muscle mass from 21.13 kgs to 25.5 kgs, Body cell mass 25.5 kgs to 27.73kgs Bone mineral content from 2.43 kgs to 2.59 kgs, Arm muscle circumference from 22.7cm to 23.34cms.

Conclusion

PEW is common in dialysis patients and is associated with adverse outcomes. Dietary interventions and nutritional support seem to be effective in mitigating or correcting PEW and improving the outcomes in patients on dialysis. All dialysis patients should be assessed periodically (monthly or quarterly) for the presence of PEW and should be offered oral nutritional support whenever required. Providing meals or oral nutritional supplements and other nutritional interventions to dialysis patients is the most promising way to increase serum albumin concentration and improve longevity and quality of life.

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