Effect of Nutritional Supportive Therapy on Children with Advanced Cancer

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Abstract

The parameter of weight/height ratio as a percentage of the 50th percentile is a basic measure for nutritional status in pediatric oncology and measures adequately response to therapeutic intervention.

The nutritional evaluation of patients with advanced or disseminated cancer suggests frequent malnutrition, especially by the criteria of weight/height. If nutritional therapy is effective, the criteria for malnutrition must be reversible. Since low serum albumin is not routinely a finding in malnourished children with cancer (2), that criterion does not apply. Other parameters are interrelated but usually also reflect protein malnutrition, e.g., muscle midarm circumference correlated with creatine/height index. However, the basic weight/height information is primary and the first to be abnormal. This short report summarizes the effect of nutritional support on this parameter in children with advanced cancer.

Patient Population

Two groups of patients are reviewed. The first is a group of children with cancer, metastatic to or from bone, who were enrolled in a prospective randomized trial of i.v. hyperalimentation. This group has been reported previously (6).

The second group is a review of 20 consecutive patients with Stage IV neuroblastoma (Stage IV-S excluded), who were treated intensively with vincristine and high-dose Cytoxan with or without trifluorothymidine and papaverine added. There is an overlap between the series, but the latter forms a homogeneous group of patients. A preliminary account of some of these patients has been reported (1). All patients were treated by the hyperalimentation protocol previously reported (3, 6). Weight/height ratios are calculated as percentage of the 50th percentile. Less than 80% is considered grossly malnourished and usually equates with the 5th percentile or lower.

Results

In the prospective randomized trial, i.v. hyperalimentation seemed to be effective in reversing or preventing weight loss in many patients during their chemotherapy episodes (Table 1). The data are more clear in the homogeneous group of neuroblastoma patients. Neuroblastoma is a disease predisposing to malnutrition (4, 5). Among the 20 patients, 9 were initially malnourished and 11 were not, although one quickly became malnourished and was treated with parenteral hyperalimentation. Chart 1 shows the course of their nutritional state during their initial chemotherapy episode. Table 2 summarizes it. Parenteral hyperalimentation changed the basic nutritional...
Discussion

The basic weight/height parameter coupled with a physical examination to look for obvious edema, together with a serum albumin to explain the edema if present on nutritional bases, usually suffices in the day-to-day management of cancer patients. Only when research questions are asked is further information needed. A child who has a documented weight/height ratio of <80% of the 50th percentile not only is but also looks malnourished. It is possible to revert these measurements after hyperalimentation or force feeding.

References

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