Abstract

Introduction: Modern home parenteral nutrition (HPN) requires the preparation of tailored admixtures. The physicians’ demands for their composition are often at the variance with pharmaceutical principles, which causes the necessity of either the preparation of ex tempore admixtures or stability testing ensuring long shelf life. Both approaches are not cost-effective. The aim of the study was to use the cooperation among physicians and pharmacists to assure both: cost-effectiveness and patient-tailored HPN admixtures.

Methods: The first part of the study consisted of the thorough analysis of prescriptions for the most demanding 47 HPN patients (27 females and 20 males, mean age 53.1 year) treated at one HPN center to create few as possible long-shelf life admixtures. The second part of the study consisted of stability testing and modifications. Results: The analysis showed over 137 variations needed to cover all macro- and micronutrients requirements. Their cost as ex-tempore solutions was extremely high (over 110 000 EURO/month) due to logistics and similarly high if stability test for variation were to be performed (68 500 EURO). Therefore prescription was prepared de novo within team of physicians and pharmacists and four base models were designed. Water and electrolytes, particularly magnesium and calcium showed to be the major issues. Stability tests failed in one admixture due to high electrolytes concentration. It was corrected, and the new formula passes the test. Five basic models were then used for creation of new bags. Cost of such an activity were 3 700 EURO (p<0.01) Conclusions: The cooperation within the members of nutritional support team could improve the cost-effectiveness and quality of HPN.

Keywords

Home parenteral nutrition, Compounding, Cost-effectiveness, Quality assurance, Physical stability, Nutritional Support Teams.