Assessing the nutritional adequacy of multi-chamber parenteral nutrition solutions to meet macronutrient, caloric, and fluid needs of adult patients on the BC Home Parenteral Nutrition (HPN) Program

V. Janzen[1], I. Lopez Ramirez[1], V. Lewis[2], A. Richardson[2], J. Thornhill[2], E. Zamora[2], A. Browes[1], H. Vass[1]
[1]BC University of British Columbia Dietetics Program, Vancouver BC [2]Providence Health Care, Vancouver

Introduction: The British Columbia (BC) HPN team serves patients throughout the province who require long-term parenteral nutrition (PN) at home. Currently, their prescriptions are individualized by the BC HPN clinical team; however, commercially made multi-chamber PN solutions (MCBs) that provide a predetermined amount of macronutrients are available for use.

Objective: To assess the nutritional adequacy of five MCBs as compared to the parenteral macronutrient, calorie and fluid needs of BC HPN patients.

Methods: A retrospective chart review was conducted for 41 eligible HPN adult patients (18+) with an active PN prescription as of Oct.1st, 2019. HPN prescriptions including carbohydrates, protein, lipids, total energy, fluid, as well as participants' weight, age, sex, and HPN indication were recorded. The nutrient breakdown of prescriptions was compared to the MCBs to assess adequacy. Adequacy was defined as being within +/- 10% of the patients' HPN prescription for macronutrients, calories, or both. A secondary analysis for fluid adequacy was conducted.

Results: Of 41 prescriptions collected, one was ineligible for analysis due to missing data. Only one prescription had macronutrient needs met by a MCB. Thirty-seven (93%) prescriptions had caloric requirements met by at least one MCB, of which three also provided adequate fluid. Further, MCBs exceeded recommended ESPEN guidelines for amount of lipids provided via PN between 3% and 88% of prescriptions per MCB.

Conclusion: Calorically, MCBs could provide a suitable alternative for a subsection of HPN patients. However, the HPN team would need to assess on an individual basis whether MCBs would be suitable for patients' macro- and micro-nutrient as well as fluid needs.

Significance: Multi-chamber solutions can be less costly, are considered safer due to decreased prescriber error, and are associated with lower risk of bloodstream infections. The use of MCBs could provide another accessible and potentially safer alternative for patients on HPN.