Abstract:

Background: Parenteral nutrition (PN) is available as individualized prescriptions frequently prepared with an automated compounding device or as commercially prepared premixed solutions. Our institution exclusively used individualized PN until an amino acid shortage forced a temporary switch to premixed solutions. In general, premixed solutions contain lower electrolyte levels than individualized formulations prescribed for patients with normal organ function. We aimed to quantify supplemental intravenous piggyback (IVPB) electrolyte use in adult patients receiving individualized and premixed PN and to quantify any effect on difference in the cost of therapy.

Methods: We compared use of supplemental IVPB electrolytes administered to patients receiving PN during consecutive periods prior to and during the amino acid shortage. Electrolyte IVPBs tabulated were potassium chloride, 10 and 20 mEq; magnesium sulfate, 2 g and 4 g; potassium phosphate, 7.5 and 15 mmol; and sodium phosphate, 7.5 and 15 mmol IVPB.

Results: There was no statistical difference in the number of PN formulations administered per day during each period (14.7 ± 3.9 vs 14.0 ± 2.6, individualized vs premixed,
respectively). Total IVPB electrolytes prescribed per day increased significantly from the individualized PN period to the premixed PN period (7.03 ± 3.8 vs 13.8 ± 6.8; P < .0001). The additional IVPB electrolyte supplementation required in patients receiving premixed PN was associated with an additional $11,855.74 cost per 30 days of therapy compared with those who received individualized PN.

Conclusion: Inpatient use of premixed PN results in a significant increase in IVPB electrolyte supplementation and cost compared with individualized PN use.
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