

Experience with Intradialytic Parenteral Nutrition at a Pediatric Hemodialysis Unit

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INTRODUCTION

This study describes one Pediatric Hemodialysis Unit's experience with Intradialytic Parenteral Nutrition (IDPN) and the benefit attained. IDPN provides calories and protein during hemodialysis and infuses into the venous line (Figure 1).

DaVita Children's Dialysis is a free standing unit, affiliated with Children's Memorial Hospital in Chicago, and averages 12-15 hemodialysis patients weekly.

METHODOLOGY

- Patients selected for IDPN were identified with certain nutrition risks, accompanied by inadequate response to conventional intervention
 - Weight loss > 5%
 - Normalized Protein Catabolic Rate < 1.0 gram/kg body weight
 - Serum albumin < 3.5 g/dl
 - Poor appetite without improvement
 - Frequent nausea/vomiting
- Interdialytic weight gains and 24 hour urinary volume, in conjunction with calculated carbohydrate, protein, and fat components determined the IDPN prescription (Table 1)
- Three patients began IDPN and were monitored for periods ranging 4 to 10 months
- Selected variables were monitored as well.
 - Glucose
 - Lipids (triglycerides <200)
 - Appetite and weight
 - Visceral proteins

Figure 1:
IntraDialytic Parenteral Nutrition



- WEEKS 1-4: Total volume is 354 ml over 3 hours
 - 59 gm protein = 295 ml (20% AA)
 - 41 gm carbohydrate = 58.5 ml (70% D)
- Week 1 – Start IDPN at 60 ml/hr
- Week 2 – Increase IDPN to 90 ml/hr
- Week 3 – Increase IDPN to goal rate of 118 ml/hr
- Continue IDPN at 118 ml/hr weeks 3-4
- IMPORTANT: Check blood sugar pre-IDPN, 1 hr into IDPN infusion, and post-IDPN to monitor glucose levels.
- WEEK 5: Add 71 ml lipid = 14 gm lipid (20% lipid)
 - Test dose - 1st 30 min. at 75 ml/hr
 - If tolerated, increase to 142 ml/hr
- Total IDPN volume: 425 ml at 142 ml/hr.

Table 1: Sample Prescription

PATIENT RESULTS

Figure 2:
Albumin Levels

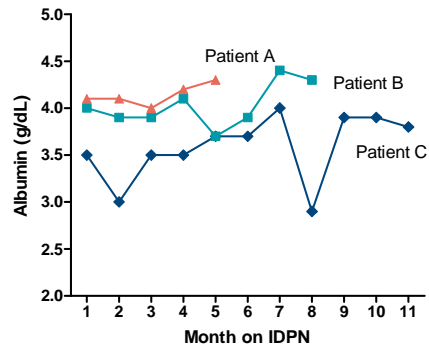


Figure 3:
Weight

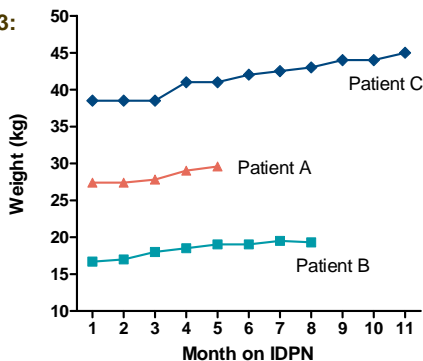
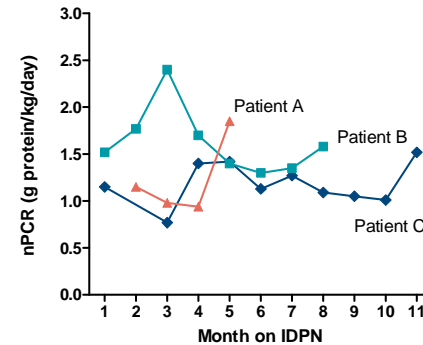


Figure 4:
nPCR Levels



CONCLUSION

- Results demonstrated improved visceral protein status and an average dry weight gain of 12% (Figures 2-4).
- Our experience suggests that IDPN can provide sufficient calories and protein to reverse catabolism and improve appetite and growth.
- Logistics to consider are in-service staff, problem solving (ultrafiltration, crit line monitoring), nursing time, schedule delivery, secure storage refrigerator, pump/tubing, and patient education.

We thank the patients who participated in this study and DaVita Clinical Research® for preparing this poster.

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