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The experience and outcomes of multidisciplinary clinical pharmacist-led parenteral nutrition service for individuals with intestinal failure in a center without home parenteral nu...

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outcomes were significantly better in a clinical pharmacy-based PN service compared to the conventional method (a routine nutrition support protocol) [29]. In another observational study, the role of a pharmacist in identifying the frequency of errors in TPN prescriptions was investigated. The researchers observed that the frequency of errors and incomplete prescriptions was higher before than after the pharmacist involvement [30]. Moreover, Zeng Wrang et al. assessed the impact of a computerized TPN prescription management system designed by pharmacists amongst patients undergoing colorectal cancer surgery. Using the TPN management system improved the safety of the patients' medications, had a positive effect on the patients' postoperative status, ensured the efficacy of the treatments, and reduced the workload of the pharmacists' audit prescriptions [7].

This study had some limitations. First, the study was only focused on the clinical impacts of clinical pharmacists' interventions, while the economic effects of their interventions were not evaluated. Second, given the lack of facilities for HPN and inaccessibility to omega-3 containing lipids and Glucagon Like Peptide-2 analogs, the impact of these interventions could not be discussed.

CONCLUSION

The study findings indicated that the clinical pharmacist involvement in the multidisciplinary team resulted in fewer TPN complications and better outcomes. Moreover, PNALD, as one of the important complications of PN, was significantly associated with portal vein thrombosis and length of ICU stay. A significant association was also observed between the rate of sepsis and history of malignancy, catheter infection, catheter thrombosis, length of the small bowel, length of PN, length of hospital stay, and length of ICU stay among the patients with IF receiving TPN. In conclusion, a multidisciplinary team approach is recommended to be implemented for the management of patients with IF due to the complexity and multifactorial features of IF. The role of clinical pharmacists should be recognized at all levels of management of IF patients requiring long-term TPN.

REFERENCES

- Pironi L, Corcos O, Forbes A, Holst M, Joly F, Jonkers C, et al. Intestinal failure in adults: recommendations from the ESPEN expert groups. *Clin Nutr*. 2018;37:1798–809. <https://doi.org/10.1016/j.clnu.2018.07.036>.
- Grainger JT, Maeda Y, Donnelly SC, Vaizey CJ. Assessment and management of patients with intestinal failure: a multidisciplinary approach. *Clin Exp Gastroenterol*. 2018;11:233–41. <https://doi.org/10.2147/ceg.s122868>.
- Belza C, Wales PW. Impact of multidisciplinary teams for management of intestinal failure in children. *Curr Opin Pediatr*. 2017;29:334–9. <https://doi.org/10.1097/mop.0000000000000493>.
- Merritt RJ, Cohran V, Raphael BP, Sentongo T, Volpert D, Warner BW, et al. Surgical rehabilitation programs in the management of pediatric intestinal failure and short bowel syndrome. *J Pediatr Gastroenterol Nutr*. 2017;65:588–96. <https://doi.org/10.1097/mpg.0000000000001722>.
- Nikoupour H, Arasteh P, Shamsaefar A, Eghlimi H, Moradi AM, Karami MY, et al. Surgical management of intestinal failure: initial experiences from an intestinal failure, rehabilitation and transplant unit in Iran. *Transplantation* 2020;104:S332.
- Ackermann E, Douglas Williams I, Freeman C. Pharmacists in general practice—a proposed role in the multidisciplinary team. *Aust Fam Physician*. 2010;39:163–4.
- Wang Z, Peng Y, Cai X, Cao Y, Yang G, Huang P. Impact of total parenteral nutrition standardization led by pharmacist on quality in postoperative patients with colorectal cancer. *Eur J Clin Nutr*. 2019;73:243–9. <https://doi.org/10.1038/s41430-018-0281-0>.
- Ko Y, Malone DC, Skrepnek GH, Armstrong EP, Murphy JE, Abarca J, et al. Prescribers' knowledge of and sources of information for potential drug-drug interactions. *Drug Saf*. 2008;31:525–36.
- Katoue MG. Role of pharmacists in providing parenteral nutrition support: current insights and future directions. *Integr Pharm Res Pract*. 2018;7:125–40. <https://doi.org/10.2147/ijrp.s117118>.
- Pironi L, Arends J, Bozzetti F, Cuerda C, Gillanders L, Jeppesen PB, et al. ESPEN guidelines on chronic intestinal failure in adults. *Clin Nutr*. 2016;35:247–307. <https://doi.org/10.1016/j.clnu.2016.01.020>.

- Wales PW, Allen N, Worthington P, George D, Compher C, Teitelbaum DASPEN. clinical guidelines: support of pediatric patients with intestinal failure at risk of parenteral nutrition-associated liver disease. *J Parenter Enter Nutr*. 2014;38:538–57. <https://doi.org/10.1177/0148607114527772>.
- Service UDoAAR. USDA Nutrient Database for Standard Reference, Release 14: Nutrient Data Laboratory Home Page: US Department of Agriculture, Agricultural Research Service; 2001.
- McClave SA, Taylor BE, Martindale RG, Warren MM, Johnson DR, Braunschweig C, et al. Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.). *J Parenter Enter Nutr*. 2016;40:159–211. <https://doi.org/10.1177/0148607115621863>.
- Lappas BM, Patel D, Kumpf V, Adams DW, Seidner DL. Parenteral nutrition: indications, access, and complications. *Gastroenterol Clin North Am*. 2018;47:39–59. <https://doi.org/10.1016/j.gtc.2017.10.001>.
- Davila J, Konrad D. Metabolic complications of home parenteral nutrition. *Nutr Clin Pract*. 2017;32:753–68. <https://doi.org/10.1177/0884533617735089>.
- Beath S, Pironi L, Gabe S, Horslen S, Sudan D, Mazeriegos G, et al. Collaborative strategies to reduce mortality and morbidity in patients with chronic intestinal failure including those who are referred for small bowel transplantation. *Transplantation*. 2008;85:1378–84. <https://doi.org/10.1097/TP.0b013e31816dd513>.
- Buchman AL. Intestinal failure and rehabilitation. *Gastroenterol Clin North Am*. 2018;47:327–40. <https://doi.org/10.1016/j.gtc.2018.01.006>.
- Bharadwaj S, Tandon P, Rivas JM, Furman A, Moccia L, Ratliff A, et al. Update on the management of intestinal failure. *Cleve Clin J Med*. 2016;83:841–8. <https://doi.org/10.3949/ccjm.83a.15045>.
- Dore M, Junco PT, Moreno AA, Cerezo VN, Muñoz MR, Galán AS, et al. Ultrashort bowel syndrome outcome in children treated in a multidisciplinary intestinal rehabilitation unit. *Eur J Pediatr Surg*. 2017;27:116–20. <https://doi.org/10.1055/s-0036-1597812>.
- Lee S, Park HJ, Yoon J, Hong SH, Hong J, Kim M, et al. Starting up Korea's First Intestinal Rehabilitation Program: the process and early outcomes. *Transplantation*. 2017;101:S156. <https://doi.org/10.1097/01.tp.0000521524.23440.cc>.
- Gavin NC, Button E, Keogh S, McMillan D, Rickard C. Does parenteral nutrition increase the risk of catheter-related bloodstream infection? A systematic literature review. *J Parenter Enter Nutr*. 2017;41:918–28. <https://doi.org/10.1177/0148607117714218>.
- Santarpia L, Pasanisi F, Alfonsi L, Violante G, Tiseo D, De Simone G, et al. Prevention and treatment of implanted central venous catheter (CVC)-related sepsis: a report after six years of home parenteral nutrition (HPN). *Clin Nutr*. 2002;21:207–11. <https://doi.org/10.1054/clnu.2002.0541>.
- Tien KL, Sheng WH, Shieh SC, Hung YP, Tien HF, Chen YH, et al. Chlorhexidine bathing to prevent central line-associated bloodstream infections in hematology units: a prospective, controlled cohort study. *Clin Infect Dis*. 2020;71:556–63. <https://doi.org/10.1093/cid/ciz874>.
- De Waele E, Malbrain M, Spapen H. Nutrition in sepsis: a bench-to-bedside review. *Nutrients*. 2020;12. <https://doi.org/10.3390/nu12020395>.
- Al Lawati TT, Al Jamie A, Al Mufarraji N. Central line associated sepsis in children receiving parenteral nutrition in Oman. *J Infect Public Health*. 2017;10:829–32. <https://doi.org/10.1016/j.jiph.2017.01.022>.
- Pradelli L, Mayer K, Klek S, Omar Alsaleh AJ, Clark RAC, Rosenthal MD, et al. ω-3 Fatty-acid enriched parenteral nutrition in hospitalized patients: systematic review with meta-analysis and trial sequential analysis. *J Parenter Enter Nutr*. 2020;44:44–57. <https://doi.org/10.1002/jpen.1672>.
- Bond A, Hayes S, Abraham A, Teubner A, Farrer K, Pironi L, et al. Reversal of intestinal failure associated liver disease fibrosis in a patient receiving long term home parenteral nutrition. *Clin Nutr ESPEN*. 2018;28:228–31. <https://doi.org/10.1016/j.clnesp.2018.09.002>.
- Morgan J, Dibb M, Lal S. Intestinal failure-associated liver disease in adult patients. *Curr Opin Clin Nutr Metab Care*. 2019;22:383–8. <https://doi.org/10.1097/mco.0000000000000594>.
- Mousavi M, Hayatshahi A, Sarayani A, Hadjibaie M, Javadi M, Torkamandi H, et al. Impact of clinical pharmacist-based parenteral nutrition service for bone marrow transplantation patients: a randomized clinical trial. *Support Care Cancer*. 2013;21:3441–8.
- Akbar Z, Saeed H, Saleem Z, Andleeb S. Dosing errors in total parenteral nutrition prescriptions at a specialized cancer care hospital of Lahore: the role of clinical pharmacist. *J Oncol Pharm Pract*. 2020;1078155220923014. <https://doi.org/10.1177/1078155220923014>.

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