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Parenteral Nutrition for Patients with Gastrointestinal Dysfunction

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Description

Parenteral Nutrition (PN) is a critical medical intervention that provides nutritional support to patients who cannot meet their nutritional needs through oral or enteral routes. This method involves the intravenous administration of nutrients, counting sugars, proteins, fats, nutrients and minerals, straightforwardly into the circulation system. PN is particularly essential for patients with severe gastrointestinal disorders, such as Crohn's disease, short bowel syndrome or bowel obstruction, where normal digestion and absorption are compromised.

Indications and applications

PN is indicated for patients with non-functional or inaccessible gastrointestinal tracts, severe malabsorption and required conditions. It is commonly used in Intensive Care Units (ICUs) for critically ill patients who are unable to eat for extended periods. Additionally, PN supports patients undergoing chemotherapy, radiation therapy or major surgeries that impair gastrointestinal function. According to recent guidelines, the decision to initiate PN should be based on a comprehensive nutritional assessment and individualized patient needs [1-3]. Early initiation of PN, within 24 to 48 hours of ICU admission, is recommended for critically ill patients with contraindications to Enteral Nutrition (EN). Parenteral nutrition remains a vital intervention for patients with severe gastrointestinal dysfunction or other conditions precluding enteral feeding. While it offers significant benefits, careful management is required to prevent complications. Advances in PN formulations and personalized nutrition are enhancing the safety and efficacy of this therapy. Ongoing research and clinical practice guidelines continue to refine the use of PN, aiming to improve patient outcomes and quality of life [4].

Immune function

Typically provided as glucose, carbohydrates supply the primary source of energy. Administered as amino acids, proteins support tissue repair and immune function. Provided as lipid emulsions, fats serve as a dense energy source and help prevent essential fatty acid deficiency. These are essential for metabolic processes and overall health. The composition of PN solutions must be carefully balanced to prevent complications such as hyperglycemia, electrolyte imbalances and liver dysfunction. Central Venous Catheter (CVC)-related infections are a significant risk, necessitating strict aseptic techniques and regular monitoring. Hyperglycemia, electrolyte imbalances and liver dysfunction are common metabolic issues that require vigilant monitoring and adjustment of the PN formulation. This potentially fatal condition can occur when initiating PN in severely malnourished patients, characterized by rapid shifts in electrolytes. Gradual introduction and close monitoring of nutrient administration are to prevent this syndrome. Recent advancements in PN have focused on improving safety and efficacy. The development of All-In-One (AIO) PN solutions, which combine all nutrients in a single bag, has simplified administration and reduced the risk of contamination. Additionally, the use of lipid emulsions containing omega-3 fatty acids has shown promise in reducing inflammation and improving clinical outcomes in critically ill patients. The role of personalized nutrition is gaining recognition, with research emphasizing the importance of tailoring PN formulations based on individual metabolic and genetic profiles. This approach aims to optimize nutritional support and minimize complications [5,6]. The use of PN, particularly in chronic or palliative care settings, raises important ethical considerations. Decisions regarding the initiation or discontinuation of PN should involve a multidisciplinary team and take into account the patient's prognosis, quality of life and personal preferences. Effective communication with patients and their families is essential to ensure informed decision-making and compassionate care [7-10].

References

1. Singer P, Blasser AR, Berger ME, Alhazzani W, Calder PC, et al. (2019) ESPEN guideline on clinical nutrition in the intensive care unit. Clin Nutr 38: 48-79.
2. McClave SA (2016) Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient. J Parenter Enteral Nutr 40: 159-211.
3. Pironi L, Boeykens K, Bozzetti F, Joly F, Klek S, et al. (2020) ESPEN guideline on home parenteral nutrition. Clin Nutr 39: 1645-1666.
4. Shi J, Liu Y, Xu YJ (2024) MS based foodomics: An edge tool integrated metabolomics and proteomics for food science. Food Chem 446: 138852.
5. Akin M, Eyduran SP, Krauter V (2023) Food packaging related research trends in the academic discipline of food science and technology: A bibliometric analysis. Cleaner and Circular Bioeconomy 5: 100046.

6. Ma P, Tsai S, He Y, Jia X, Zhen D, et al. (2024) Large language models in food science: Innovations, applications and future. Trends Food Sci 148: 104488.
7. Schumacher LK, Roy M, Wishe HI, Cohen MW, Stotzky G (1996) Supplementation with selenium augments the functions of natural killer and lymphokine-activated killer cells. Biol Trace Elem Res 52: 227-239.
8. Avery JC, Hoffmann PR (2018) Selenium, selenoproteins and immunity. Nutrients 10: 1203.
9. Trickett A, Kwan YL (2003) T cell stimulation and expansion using anti-CD3/CD28 beads. J Immunol Methods 275: 251-255.
10. Bashour KT, Gondarenko A, Chen H, Shen K, Liu X, et al. (2014) CD28 and CD3 have complementary roles in T-cell traction forces. Proc Natl Acad Sci 111: 2241-2246.