

PARENTERAL PROVISION OF MICRONUTRIENTS TO ADULT PATIENTS: AN EXPERT CONSENSUS PAPER

Micronutrients are a critical component to nutritional provision and parenteral nutrition (PN) provided without them pose a considerable risk to nutritional status. Obstacles to their daily provision - including voluntary omission, partial provision and supply issues - must be overcome to allow safe and responsible nutrition practice.

Panel consensus highlighted the importance of micronutrient provision as an integral, daily part of safe and responsible PN provision.

CONSENSUS PAPER OVERVIEW

PANEL PURPOSE

- Assist clinicians to bridge the gap between available guideline recommendations.

METHODS

A panel of multidisciplinary healthcare professionals with significant experience in the provision of parenteral nutrition (PN) and intravenous micronutrients developed this international consensus paper, based on available evidenced-based literature and existing guidelines.

- **Panel addressed 14 clinically relevant questions** regarding the importance and use of micronutrients in various clinical conditions. Practical guidance on how micronutrients should be prescribed, administered and monitored were provided.

INTERNATIONAL GUIDELINE RECOMMENDATIONS

2018



Providing micronutrients to include the full range of trace elements and vitamins is an integral part of nutritional support.¹

2016



A parenteral multivitamin preparation should be provided from the day of PN commencement and as regularly as PN is provided.²

2009



Micronutrients should be included whenever nutrition therapy is instituted. Micronutrient supplementation should begin on the first day of nutrition therapy and continue daily.³

CONSENSUS PAPER HIGHLIGHTS⁴

QUESTION	PANEL RESPONSE
Why are micronutrients important?	Micronutrients are essential for the metabolism and utilization of macronutrients and affect virtually every enzyme system in the body. As such, they constitute a crucial component of nutrition therapy and should be delivered in the recommended amounts daily.
Is there a need to provide IV micronutrients to critically ill patients based on low serum concentrations?	In those receiving PN support, daily IV MV and MTE provision usually prevents the development of micronutrient deficiencies that may develop in response to acute inflammation.
What are the roles and importance of micronutrients in home PN [HPN]?	Micronutrients provided as part of an individually prescribed HPN formulation are essential to patients with long term HPN requirements and may represent the only reliable source of micronutrient provision and replacement.
Are there any risks associated with IV micronutrient provision at routine PN dosages?	The highest risk regarding routine doses is not delivering them with PN. There are few instances in long term PN where the choice of parental micronutrient products administered should be carefully considered.

EXPERT PANEL CALL TO ACTION:



Micronutrients must be provided daily from the commencement of PN macronutrients to provide safe and complete nutrition, and that failure to do so will pose nutritional risk.



PN is not the only indication to prescribe IV micronutrients. Prescribers need to recognize other high-risk groups (e.g., inadequate enteral intake, excessive losses) that also necessitate additional micronutrients.



Prescribers should commit to provide advanced nutrition support training for clinicians to promote and deliver safe PN.

References:

1. Singer P, et al. ESPEN guideline on clinical nutrition in the intensive care unit. *Clin Nutr.* 2019;38(1):48-79.
2. Osland EJ, et al. Australasian Society for Parenteral and Enteral Nutrition (AuSPEN) adult vitamin guidelines for parenteral nutrition. *Asia Pac J Clin Nutr.* 2016;25:636-50.
3. Sriram K and Lonchyna VA. Micronutrient Supplementation in Adult Nutrition Therapy: Practical Considerations. *JPEN J Parenter Enteral Nutr.* 2009;33: 548-56.
4. Blaauw R, et al. Parenteral Provision of Micronutrients to Adult Patients: An Expert Consensus Paper. *JPEN J Parenter Enteral Nutr.* 2019 Mar;43 Suppl 1:S5-S23.

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