

Tertiary/Quaternary Level Essential Drug List SUMMARY

Medication Name: Micronutrients (Parenteral Nutrition)

Date: August 2017 (updated 2020)

Indication: Micronutrients are indicated for addition to parenteral nutrition (PN) where PN is indicated for longer than 2 days.

In these cases, in consultation with Institutional or Provincial Pharmacy and Therapeutics Committees the following modes of delivery should be considered:

1. Multichamber PN bag to which micronutrients (water soluble vitamins, fat soluble vitamins, trace elements) are added in a sterile fashion by appropriate measures;
2. Use of all-in-one PN bags which contain micronutrients and vitamins.

Context:

Basic nutrition comprises of both macronutrients and micronutrients to prevent the development of malnutrition and nutritional deficiencies. It is globally accepted that micronutrients are essential.^{i, ii}

The term micronutrients refers both to vitamins and trace elements. Vitamins are organic substances not synthesized by the body and are necessary for normal metabolism. They are divided into water- or fat- soluble vitamins and those with or without coenzyme function. Trace elements are metals present in very minute quantities in the body that are essential for normal metabolic function as cofactors of enzymes or as an integral part of the structure of specific enzymes.ⁱⁱⁱ

Pre-existing micronutrient (vitamins and trace elements) deficiencies are often present in hospitalized patients. However new deficiencies can occur due to inadequate or inappropriate administration, increased or altered requirements and increased losses, affecting various biochemical processes and resulting in organ dysfunction, poor wound healing, and altered immune status with deleterious sequelae.^{iv}

NOTE:

Replacement of micronutrients is for physiological provision, rather than pharmacological use.

Recommendation:

Short term

It is recommended that for short term PN in a secondary or tertiary level hospital that the multi-chamber bags available on National Contract be utilized.

Long term PN

It is recommended that micronutrient supplementation be given. Either of the two options described above can be considered in consultation with Institutional/Provincial Pharmacy and Therapeutics Committees:

References:

ⁱ Repositioning Nutrition as Central to Development. A Strategy for Large-Scale Action. The World Bank. 2006.

ⁱⁱ Investing in the Future. A United Call to Action on Vitamin and Mineral Deficiencies. A Global Report 2009.

ⁱⁱⁱ Sriram K, Lonchyna VA. Micronutrient supplementation in adult nutrition therapy: practical considerations. JPEN J Parenter Enteral Nutr. 2009 Sep-Oct;33(5):548-62.

^{iv} Berger MM, Shenkin A. Vitamins and trace elements: practical aspects of supplementation. Nutrition. 2006 Sep;22(9):952-5. PubMed PMID: 16928476.