



Letter

Multivitamin Product Shortage: Experience in a Tertiary Referral Hospital in Malaysia

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Micronutrients such as multivitamins are essential for the metabolism and utilisation of macronutrients. ESPEN guidelines reinstate the necessity to deliver multivitamins daily in parenteral nutrition (PN) [2]. In our paper, we describe the management and steps taken by the nutrition therapy team at Hospital Kuala Lumpur, a public tertiary referral hospital, to ensure safe and effective parenteral nutrition (PN) provision during critical parenteral multivitamin shortages in Malaysia.

Traditionally, we use Soluvit N® (Fresenius Kabi AB, Uppsala, Sweden), a water-soluble vitamin product for all patient populations in our centralised compounding centre. Due to the global shortage of parenteral multivitamins, further exacerbated by the impact of the COVID-19 pandemic, we have experienced critical shortages of Soluvit N® in our country. The reasons for the shortages include regulatory issues, voluntary recalls, raw materials issues, increased demand, loss of manufacturing sites and quality issues [3].

When the shortage arises, we evaluate the different types of commercially available products in Malaysia regarding their vitamin profile, dose and formulation. We use adult multivitamin products such as Cernevit® (Baxter SA, Opficon, Switzerland) and Trovite® (Duopharma, Klang, Malaysia) as an alternative for our adult patients. We conserve the supplies of Soluvit®, the only paediatric multivitamin product available in our market, for neonates and paediatrics less than 12 years old. When the Soluvit® stock became exhausted, we reduced

the Soluvit® dose to three times a week in patients on home PN tolerating oral and/or enteral feeding while encouraging oral supplements to conserve available resources [4]. We resumed the daily provision of multivitamins in PN after the shortage was resolved. No adverse outcomes were reported in our patients during the four-week shortage period.

Multivitamin shortage may increase the risk of deficiency, morbidity and mortality [5]. For instance, thiamine deficiency has been reported to cause lactic acidosis, Wernicke encephalopathy, beriberi or even sudden death due to cardiac failure [4]. One of our challenges is that we cannot routinely check patients' blood vitamin levels due to the difficulty of access, high costs and limited resources. While it is difficult to monitor blood vitamin levels, we monitor full blood count, renal profile and liver function tests once a month. This is because red blood cells are an alternative measurement for Vitamin B1, B2, B6 and folate (B9) whereas leucocytes may be used for Vitamin C [1]. While we also monitor the clinical status of our patients, it is challenging because there is a lack of universal consensus on the reliable assessment of clinical status in case of any suspicion of vitamin deficiency [1].

Patients who need life-sustaining PN therapy have no alternatives if there is a product shortage. We hope the health authorities can rectify the underlying cause of shortages and improve the continuity of access to the micronutrients and other components of PN. Based on our experience, a multifaceted approach that includes using alternative products, prioritising the supplies for the most vulnerable populations and rationing the available resources are essential management steps during micronutrients shortage crisis.

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