The present study aimed to determine the compatibility between vancomycin (VMC) and five ready-to-use PN admixtures utilized worldwide (Kabiven, Nutriflex Lipid Special, Olimel N9E, Nutriflex Omega Special, and Smofkabiven) in order to assess the possibility of their co-administration via Y-sites” Stawny et al 92019).

Abstract:

BACKGROUND & AIMS: A co-infusion of parenteral nutrition (PN) and other drugs is often necessary in patients with a limited number of vascular access sites. This practice increases the risk of interaction between drugs and PN admixtures that may be manifested as drug precipitation or lipid emulsion destabilization. The present study aimed to determine the compatibility between vancomycin (VMC) and five ready-to-use PN admixtures utilized worldwide (Kabiven, Nutriflex Lipid Special, Olimel N9E, Nutriflex Omega Special, and Smofkabiven) in order to assess the possibility of their co-administration via Y-sites.

METHODS: VMC and PN admixtures were mixed at three volume ratios (1:1, 1.5:1, and 3:1) and potential interactions were examined using visual inspection, pH and osmolality measurements, as well as particle size and zeta potential determination. The analyses were conducted immediately after sample preparation and after 4 h of storage.

RESULTS: The PN admixtures were characterized by the pH in the range from 5.44 to 6.23, the osmolality in the range from 1169 ± 3 mOsm/kg H2O to 1929 ± 6 mOsm/kg H2O. The zeta potential of the PN admixtures was between -12.97 ± 0.86 mV and -4.55 ± 0.45 mV. The particle size, expressed as mean droplet diameter (MDD) ranged from 226.8 ± 4.2 nm to 281.6 ± 6.3 nm. The addition of VMC to PN admixtures caused a decrease in the pH, osmolality, and zeta potential. The MDD values for all samples were below 500 nm, except VMC-Olimel N9E at the volume ratio 1:1 (v/v), for which MDD = 805 nm. The presence of lipid particles exceeded the size of 4000 nm was observed for VMC-Olimel N9E and VMC-Smofkabiven.

CONCLUSIONS: We suggest that a simultaneous administration of VMC with PN admixtures containing olive oil should be avoided. As we established, this type of emulsion is less stable and tends to form agglomerates when combined with VMC. However, as demonstrated in our study, when it is necessary to co-administer VMC with PN admixtures,
this is possible with Kabiven, Nutriflex Lipid Special, and Nutriflex Omega Special at volume ratios of 1:1, 1.5:1, and 3:1.

You may also be interested in...

Reference: