This study aims at assessing the modality of use and safety of premixed standardized PN solutions in a nationwide prospective cohort of newborns treated in clinical practice" Lapillonne et al (2017).

Abstract:

BACKGROUND & AIMS: Limited or delayed availability of parenteral nutrition (PN) solutions, as well as difficulties in ordering are often identified as reasons for non-compliance with international guidelines in newborns. This study aims at assessing the modality of use and safety of premixed standardized PN solutions in a nationwide prospective cohort of newborns treated in clinical practice.

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METHODS: Two premixed fixed formulations with respective osmolarity of 715 and 790 mOsm/L specifically designed for neonates were made available throughout the country for clinical use from birth onwards. Descriptive data and modality of use were prospectively collected in a case report form, whereas all related and unrelated adverse events were recorded on a separate adverse event form.

RESULTS: A total of 14,167 infants were prospectively included and 16,640 parenteral nutrition periods were analyzed. Mean age was 33 weeks of gestation, and mean weight was 2086 g. The majority of infants (81%) started the parenteral nutrition the first day of life or the day after. The route of parenteral nutrition delivery was peripheral in 47% of the parenteral nutrition periods. During the whole study, a total of 72 adverse events occurring in 68 infants were reported. Of these adverse events, 59 (0.37% of the nutrition periods), among which 19 serious adverse events, were reported as related to the parenteral nutrition solutions. The events related to parenteral nutrition solutions were general disorders and administration site conditions (n = 42 including 9 cases of cutaneous necrosis), and nutrition and metabolism disorders (n = 17). There was no case of thrombophlebitis. Six of the 19 serious events related to the parenteral nutrition solutions (32%) were due to the misuse of the infusion bag.

CONCLUSIONS: These data support the concept that ready-to-use parenteral nutrition formulations can safely provide parenteral nutrition from birth onwards. They further support that parenteral solutions with an osmolarity up to 800 mOsm/L are well-tolerated when infused on a peripheral vein. Considering the potential risk of errors and misuses, this study also highlights the need for nutrition practice care guidelines for neonates and for regular campaigns providing information and strategies for a safe use of parenteral nutrition solutions.

Reference:

Lapillonne, A., Berleur, M.P., Brasseur, Y. and Calvez, S. (2017) Safety of parenteral nutrition in newborns: Results from a nationwide prospective cohort study. Clinical Nutrition. February 8th. .

doi: 10.1016/j.clnu.2017.02.002.

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