

**Material and methods** A prospective study (June–September 2019) was carried out. Variables included demographics, duration of PN, indication for PN, type of PI and degree of acceptance. The data were obtained from medical and pharmaceutical nutrition records.

**Results** Fifty-four patients were registered (71% men, average age 65 years (range 39–87)). The average duration of PN was 11 days (1–39). A total of 176 interventions were recorded (3.3 PIs/patient): 91.5% during follow-up and 8.5% after finishing PN. Distribution of PIs according to diagnosis were: polyvalent critical patients (48.1%); postoperative complications (29.6%); colorectal surgery (9.2%); upper gastrointestinal tract surgery (5.7%); pancreatitis (3.7%); and liver diseases (3.7%). According to the type of PI: 36.6% were related to a change in the composition of macronutrients, and 61% of these PIs were related to proteins (78%—increase in order to cover the nitrogen requirements), 23.7% were related to lipids (71%—restriction due to triglycerides >400) and 15.3% were related with carbohydrates (100%—decrease in the supply due to high levels of glycaemia); 31.7% were related to a change in the amount of electrolytes (53%—extra supply; 47%—restriction), with phosphorus being the electrolyte which generated the highest number of PIs (45%); 18.6% were related to addition of insulin in the PN; 10.6% were related to a request for a nutritional profile; and 2.5% were related to cycling of PN due to cholestasis. Most of the PIs (88.7%) were accepted by physicians.

**Conclusion and relevance** The majority of interventions were due to changes in the composition of macronutrients and micronutrients of the PN, adjusting to the constant changes in the needs of critically ill patients. The high number of PIs per patient and the high degree of acceptance by physicians highlight the significant role of the hospital pharmacist in the nutritional control of critically ill patients.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

#### 4CPS-196 STABILITY OF LIPID EMULSION IN PAEDIATRIC PARENTERAL NUTRITION WITH HIGH ELECTROLYTIC LOAD

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**Background and importance** Ternary mixtures in parenteral nutrition (PN) have a complex composition and so interactions between components can lead to instability, compromising safety. Fat globules >5 µm can cause thromboembolisms. Critical aggregation number (CAN) is used to predict stability (calculated with cation concentration).

**Aim and objectives** To analyse the stability of the lipid emulsion in PN samples with a high CAN using globule size measurements, and to evaluate the influence of temperature and time on emulsion stability.

**Material and methods** We studied four samples according to the nutritional requirements of a 1 kg neonate during the first days of life. Micronutrient amounts were greater than those recommended, and vitamins and zinc were also added. Samples were prepared in duplicate.

Globule size was measured by laser diffraction (Beckman Coulter LS-I3-320) on the preparation day (day 0) and after 7 days. The samples were stored under refrigerated conditions and at room temperature. CAN was calculated based on the concentrations of cations present in each PN. Statistical analysis was performed using the Student's t test (statistical significance  $p < 0.05$ ).

**Results** PN composition is shown in table 1 and average globule size (µm) is shown in table 2.

There were no significant differences between measurements on day 0 and day 7 on samples stored at room temperature or in a refrigerator ( $p = 0.896$  and  $p = 0.171$ , respectively).

**Conclusion and relevance** Average globule size was stable despite a high CAN of samples, but more sensitive analytical techniques may be necessary to detect changes in the fraction of large globules. The study time and different storage temperature did not influence the average globule size of our samples. To establish the overall stability of the PN, more complete studies should be carried out, analysing more stability dependent processes.

#### REFERENCES AND/OR ACKNOWLEDGEMENTS

No conflict of interest.

Abstract 4CPS-196 Table 2

Sample	Day 0	Day 7 (25°C)	Day 7 (4°C)
PN1	0.251±0.086	0.263±0.099	0.244±0.081
PN2	0.269±0.115	0.248±0.086	0.257±0.095
PN3	0.266±0.098	0.268±0.112	0.270±0.102
PN4	0.270±0.101	0.273±0.111	0.257±0.082

Abstract 4CPS-196 Table 1

Sample (100 mL)	Nitrogen (g/L)	Glucose (g/L)	Lipids (g/L)	Sodium (mmol/L)	Potassium (mmol/L)	Magnesium (mmol/L)	Calcium (mmol/L)	Phosphorus (mmol/L)	CAN (mmol/L)
PN1	3.7	92.6	17.5	40.0	30.0	3.0	20.0	20.0	1542
PN2	4.2	106.8	21.6	40.0	30.0	3.0	20.0	20.0	1542
PN3	4.7	121.0	25.8	50.0	35.0	3.5	22.5	25.0	1749
PN4	5.2	135.2	29.9	60.0	40.0	4.0	25.0	30.0	1956