



# CPC046 Standard parenteral nutrition for preterm infants : impact on amino acid intake


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## Introduction

Early and aggressive amino acid (AA) supplementation (3-4 g/kg/day since birth) is recommended in preterm infants to prevent catabolism and long term adverse consequences<sup>1</sup>. Inadequate early nutritional intake was suspected in our institution with individualised parenteral nutrition (IND PN) due to prescribing and compounding delay. Ready-to-use standard parenteral nutritions (STD PN) for the first 5 days of life were developed<sup>2</sup> and implemented to improve nutritional support.

## Method

**Population** 


Retrospective case-control study:  
Neonatology and Pediatric Intensive Care Unit  
From April 2008 to February 2010

Inclusion criteria:  
Preterm infants with  
- birth weight (BW) ≤ 1500 g  
- gestational age (GA) ≤ 32 weeks  
- PN during the first five days of life

Outcome: cumulative amino acid intake (parenteral and enteral) during the first 5 days of life.  
(Mann-Whitney and linear modelling by GEE).

**Case: STD PN**

D0: day of birth / D1-4: day 1 to 4 after birth


 **STD PN D1-4 100 mL:**  
AA 3 g  
Glucose 10.8 g  
Heparin 0.5 UI/mL  
Na<sup>+</sup> 2 mmol  
K<sup>+</sup> 1 mmol  
PO<sub>4</sub><sup>3-</sup> 0.86 mmol  
Ca<sup>++</sup> 1.1 mmol

**STD PN D0 100 mL:**  
AA 3 g  
Glucose 10.8 g  
Heparin 0.5 UI/mL

+ Lipids: Lipofundin® LCT/MCT with vitamins (Cernevit®)

➤ Fixed 3% AA concentration  
➤ Available in wards since the first day of life (Day 0)

**Control: IND PN**

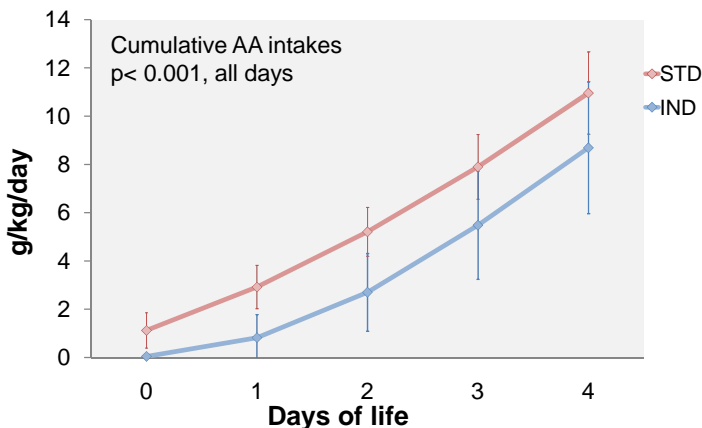


IND PN: Tailored made formula with vitamins +  
Lipids : Lipofundin® LCT/MCT

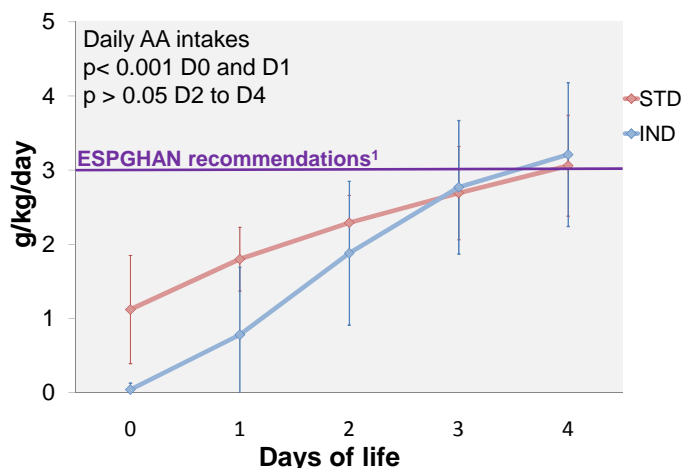
➤ Various formula according to daily prescription  
➤ Prescribing and compounding delay

## Results

- 64 infants included (23 STD PN – 41 IND PN)
  - BW 1.9 ± 0.2 vs 1.0 ± 0.2 kg, p=0.03
  - GA 29.6 ± 1.3 vs 29.0 ± 2.2 weeks, p=0.27
- Intakes of 3 g/kg/day was reached at day 4 in both groups (figure 1)
- Cumulative AA intakes was improved by STD PN during the first 5 days (figure 2)
- Supplementary intakes in the STD PN group remain constant over the time (no day effect, p=0.7).



**Figure 2: Cumulative AA intakes (parenteral and enteral)**



**Figure 1: Daily AA intakes (parenteral and enteral)**

## Conclusion

Cumulative amino acid intakes improvement by STD PN during the first 5 days of life of preterm infants, was due to earlier nutritional supplementation. However, European recommendations being reached only at day 4, an increase of amino acid concentration in the formula should be considered.

References: 1.Koletzko B. ESPGHAN Guidelines. J Pediatr Gastroenterol Nutr. 2005; 41 Suppl:S1-87 2. Bouchoud L. Clin Nutr. 2010; 29: 808-12