



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

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### INTRODUCTION

Early and aggressive amino acid supplementation is recommended in preterm infants in the neonatal period to prevent catabolism and long term adverse consequences<sup>(1,2)</sup>.

Inadequate early nutritional intake was suspected in our institution with individualised parenteral nutrition (IPN) due to prescribing and compounding time. Ready-to-use standard parenteral nutritions (SPN) for the first 5 days of life were developed and implemented to improve amino acid intake in the early neonatal period and growth<sup>(3)</sup>.

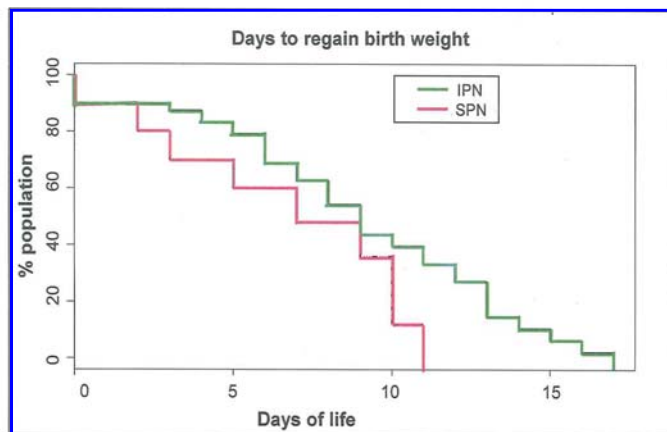
### MATERIALS AND METHODS

- ✓ Retrospective case (=preterm with SPN) - control (=preterm with IPN) study in neonatal and paediatric intensive care unit (April 2008-August 2009)
- ✓ SPN : glucose 10.8%, amino acids 3%, +/- electrolytes
- ✓ Inclusion criteria : preterm infants with birth weight ≤ 2000 g and gestational age ≤ 32 weeks
- ✓ Primary outcome (Kaplan Meier analysis) : growth parameters during the first 15 days of life (number of days for recovering birth weight, maximal weight loss and AUC of growth curves).
- ✓ Secondary outcome (Mann-Whitney) : cumulative amino acid intake during the first 5 days of life

### RESULTS

- ✓ 58 preterm infants were included (10 for SPN group - 48 for IPN group)
- ✓ Mean birth weight was 1196.0 ± 286.7 g vs 1108.3 ± 352.5 g (p = 0.383)

#### 1) Time to regain birth weight :



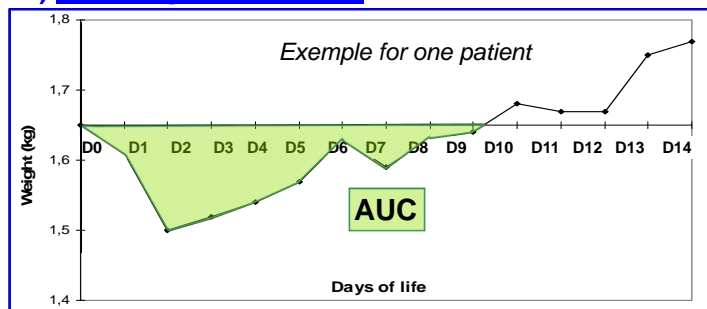
**P = 0.07**

#### 2) Maximal weight loss (ΔP) :

Group	N	ΔP (m+/- SD) (g)	%/birth weight +/- SD
IND	48	100.0 (62.5)	8.9 (4.4)
STD	10	84.0 (60.6)	6.9 (4.8)

**P = 0.28**

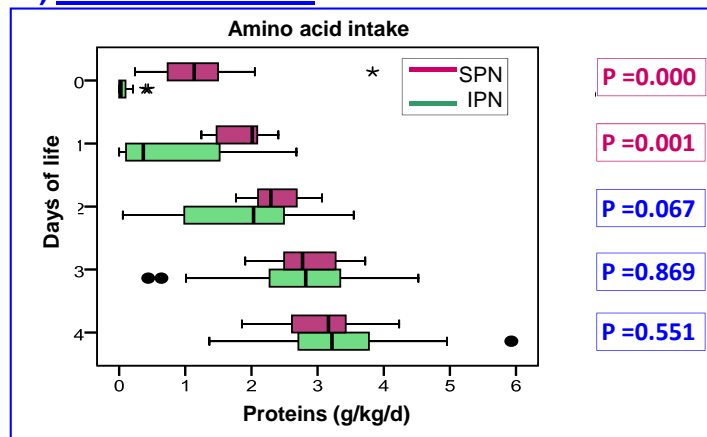
#### 3) AUC of growth curves :



Groupe	N	AUC (m+/-SD) (kg.j)
IND	48	0.5 (0.5)
STD	10	0.3 (0.2)

**P = 0.36**

#### 4) Amino acid intake :



**P = 0.000**

**P = 0.001**

**P = 0.067**

**P = 0.869**

**P = 0.551**

### DISCUSSION - CONCLUSION

Amino acid intake was significantly improved by SPN during the first 3 days of life of preterm infants and a trend to recover birth weight earlier was observed. Results of this pilot study have to be confirmed in a larger scale study.

(1) Thureen PJ *et al. Pediatr Res* 2003; 53:24-32. (2) Te Braake FW *et al. J Pediatr* 2005; 147:457-61. (3) Bouchoud L *et al. Clin Nutr* 2010; doi:10.1016/j.clnu.2010.04.004.