



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

C. Martin¹, L. Bouchoud¹, C. Fonzo-Christe¹, C. Combescuré², R. Pfister³, P. Bonnabry¹.

¹Pharmacy, ²Division of clinical epidemiology, ³Neonatal Intensive Care Unit, University Hospitals of Geneva (HUG), Switzerland

INTRODUCTION

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

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⁽³⁾.

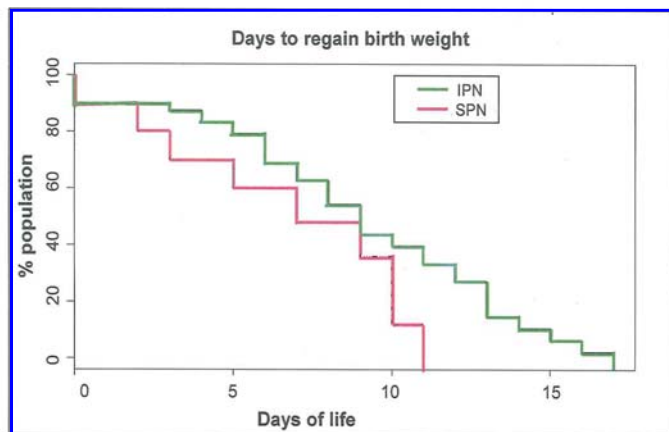
MATERIALS AND METHODS

- ✓ 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 \leq 2000 g and gestational age \leq 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 :



Group	N	Days (m+/- SD)
IND	48	8.8 (0.7)
STD	10	6.6 (1.2)

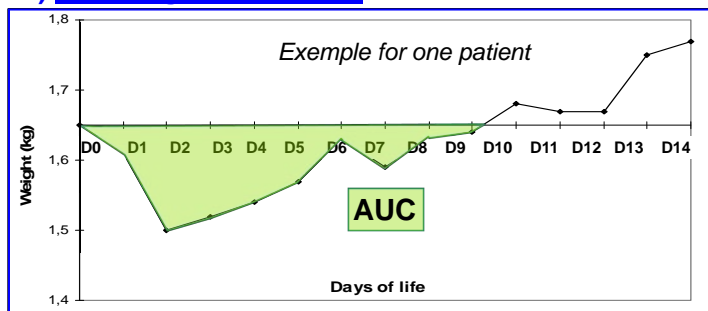
P = 0.07

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

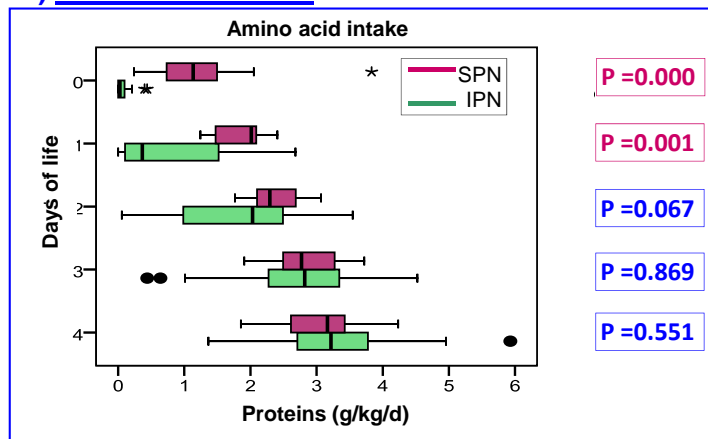
3) AUC of growth curves :



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.