NUTRITION PARENTERALE EN REANIMATION QUAND?

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Service de Réanimation Médicale – CAMU

16 ème Congrès National de Réanimation- 25-26 Novembre 2011

PREREQUIS 1

INDISCUTABLEMENT

Lorsque le TD fonctionne utilisez le !!!

- Maintien intégrité fonctionnelle et morphologique du TD
- Favorise la motilité digestive et donc la reprise progressive de la nutrition orale
- Réduction de la translocation bactérienne
- Meilleure utilisation des substrats
- Meilleure tolérance au glucose
- Réduction des infections sur cathéter

PREREQUIS 2

Dénutrition

40% des patients hospitalisés

- **Ce déficit peut augmenter**

  (selon comment nous allons les nourrir)

- D’autant plus que le patient est hospitalisé en réanimation

PREREQUIS 2: CONSEQUENCES

Dénutrition
Commence tôt (4-5j)

- ↗ **Pourcentage d'infection, coût**

Rubinson L,et al. Crit Care Med 2004, 32:350-357

- ↗ **Autres complications**
  - ↗ durée de ventilation,
  - ↗ durée d'hospitalisation
- ↗ **Mortalité**

Villet S et al. Clin Nutr 2005, 24:502-509. Dvir D, et al. Clin Nutr 2006, 25:37-44.

PROBLEMATIQUE

Prôblèmes rendant la nutrition entérale difficile

- Manqu cholamines)
- Motilite
- Absorp
- Syndrome du compartiment abdominal

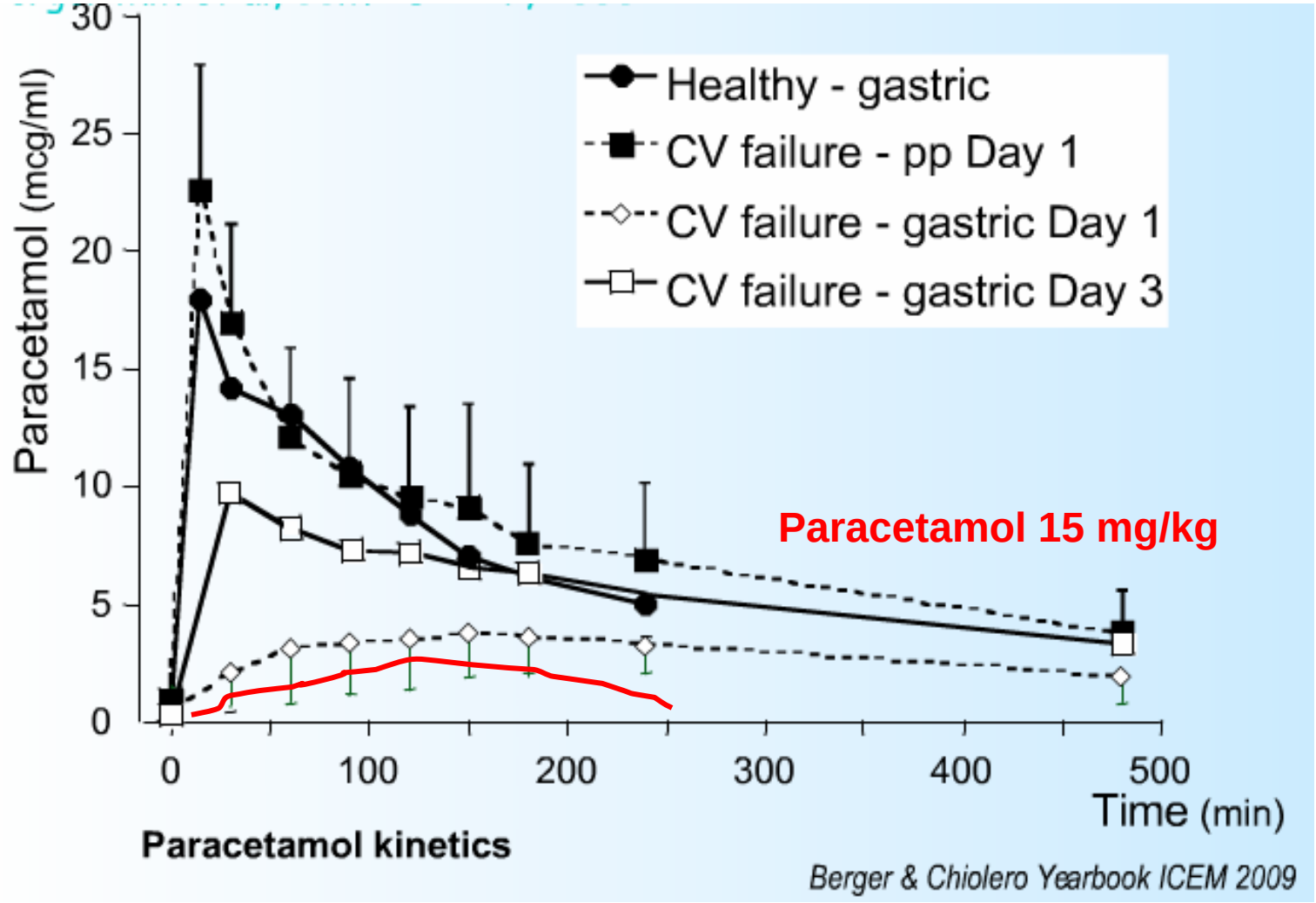
Intolerence gastro intestinale

Regurgitation

Distension voire colectasie

Absorption intestinale après chirurgie cardiaque

d'après Berger MM et al. CCM 2000; 28: 2217



PROBLEMATIQUE 2

La NE précoce (< 3 j)

COMMEMCER PAR FAIBLE QUANTITE
Aport calorique cumulé < 70%

Barr J,et al.
Chest 2004, 125:1446-1457.

Clinical Nutrition (2006) 25, 51–59

ELSEVIER

Clinical Nutrition

http://intl.elsevierhealth.com/journals/clnu

ORIGINAL ARTICLE

Enteral nutrition delivery and energy expenditure in medical inten

- Etude Allemande
- Prospective
- 231 patients
- 500 Kcal à J1 → 2000 Kcal à J4

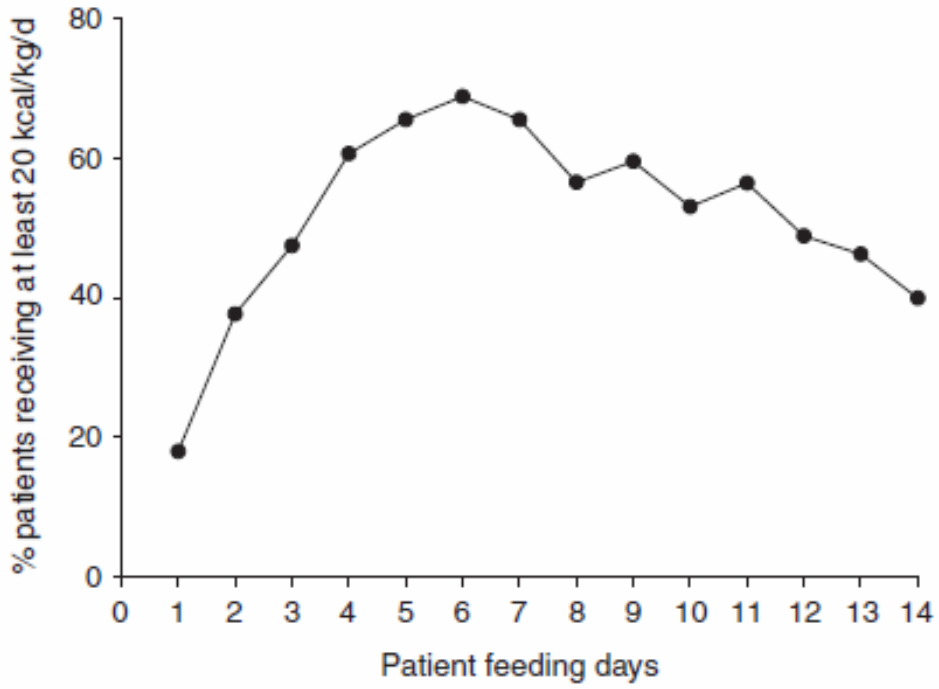


Figure 1 Proportion of patients who received a daily enteral supply of at least 20 kcal/kg.

PREREQUIS 3

La NE précoce (< 3 j)

COMMEMCER PAR FAIBLE QUANTITE
Aport calorique cumulé < 70%

Barr J,et al. Chest 2004, 125:1446-57
Sirak Petros. Clinical Nutrition 2006:25, 51–59

STOP

Desachy A, et al.
Intensive Care Med 2008, 34:1054-9.

ALORS QU'ON SAIT QUE TOUT CE PASSE LA PREMIERE SEMAINE

PRINCIPALES ETUDES

Negative impact of hypocaloric feeding and energy balance on clinical outcome in ICU patients

- Etude Suisse
- 48 patients de
- Au delà de 5 j,

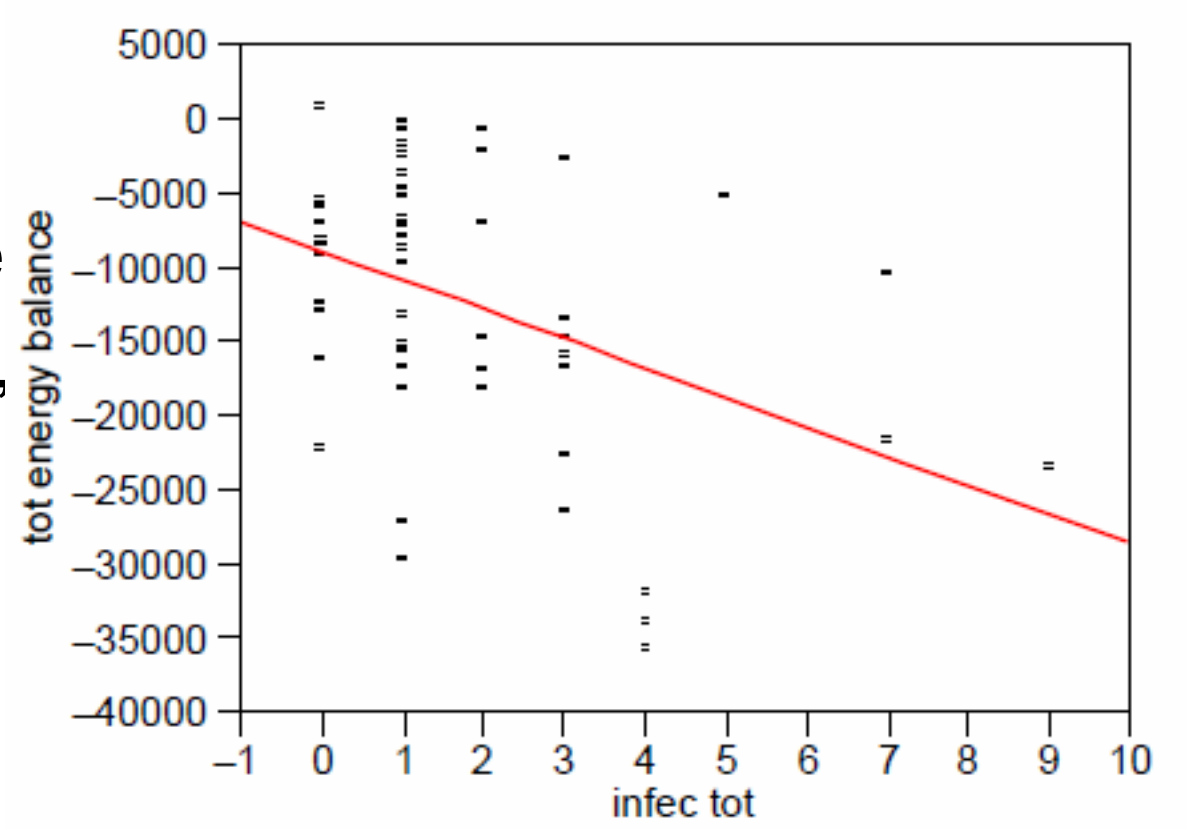


Figure 2 Relation between the progressive negative energy balance and the number of infectious complications.

Villet et al. Clinical Nutrition 2005;24,502

Negative impact of hypocaloric feeding and energy balance on clinical outcome in ICU patients

- Etude Su
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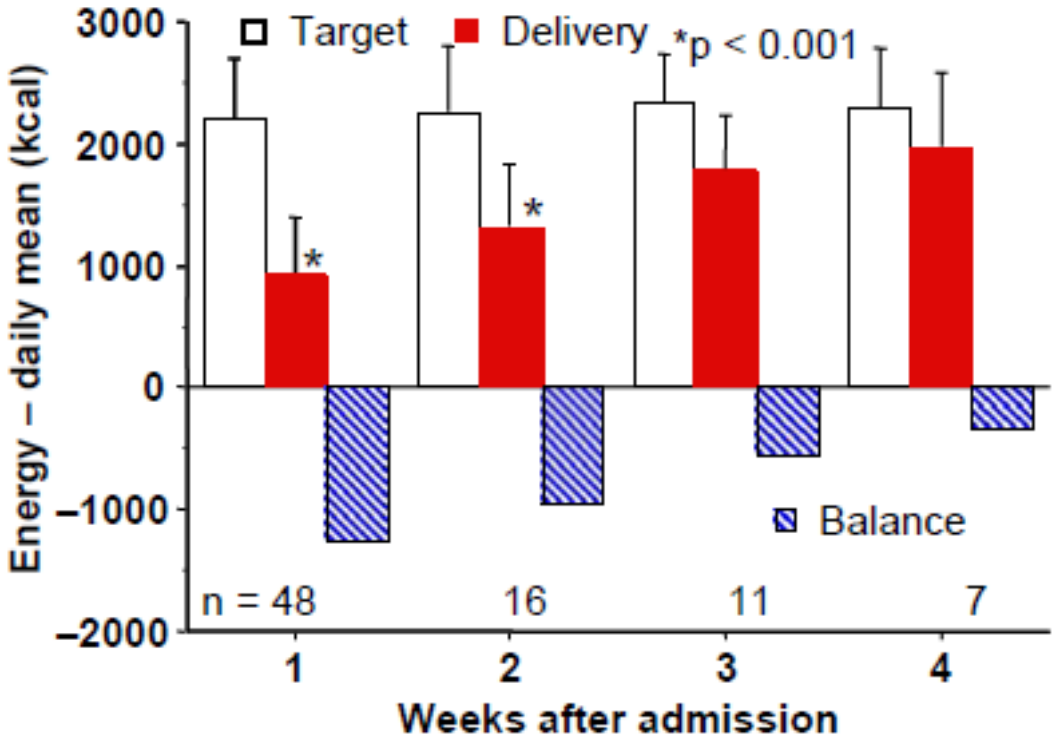


Figure 1 Progression of energy delivery compared to energy target over 4 weeks: the figure shows that energy delivery increases with time, reducing daily deficit.

Villet et al. Clinical Nutrition 2005;24,502

Computerized energy balance and complications in critically ill patients: An observational study.

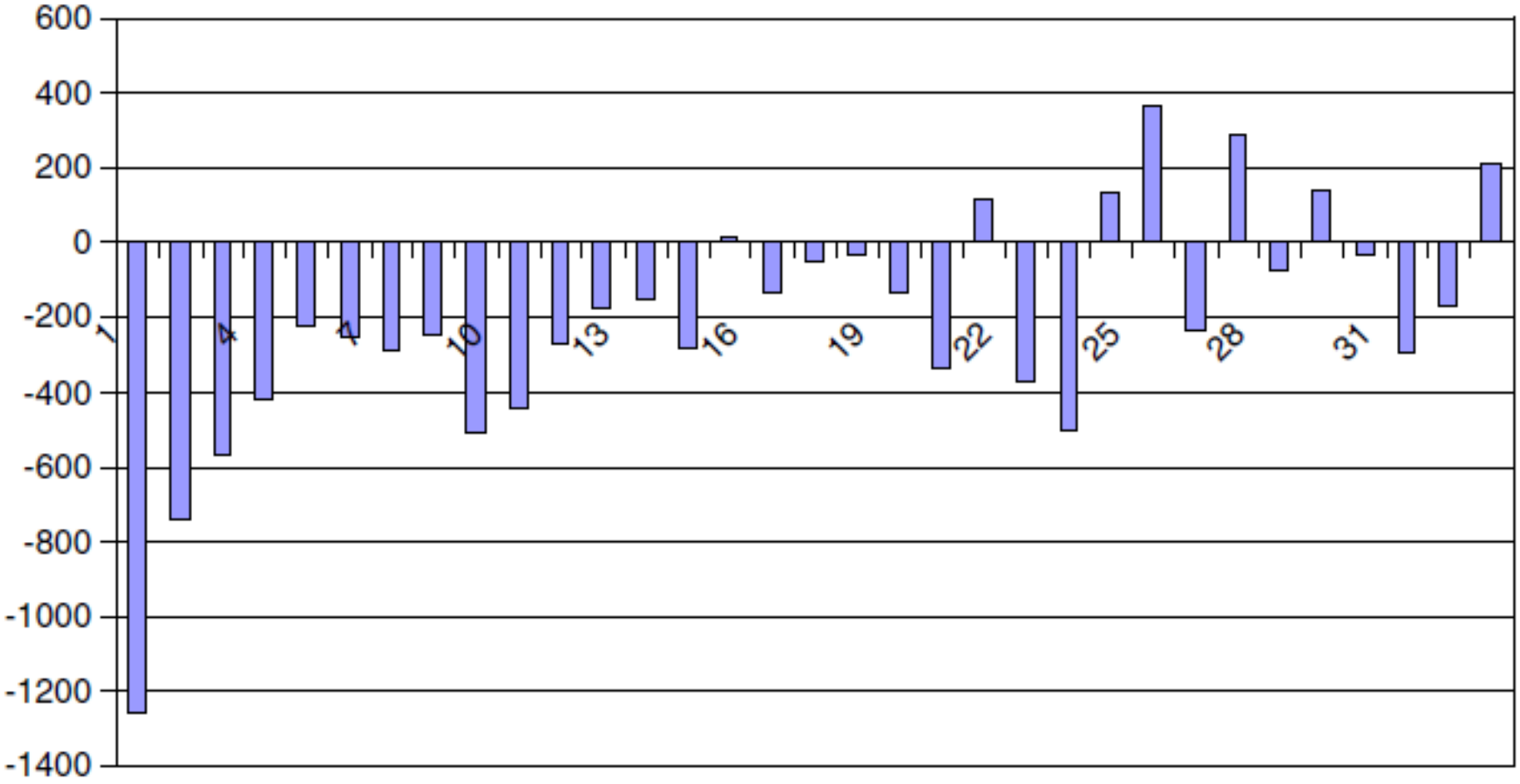


Figure 1 Daily mean energy balance (in kcal) in relation with time in days.

Dvir D et al. Clinical Nutrition (2006) 25, 37–44

Computerized energy balance and complications in critically ill patients: An observational study.

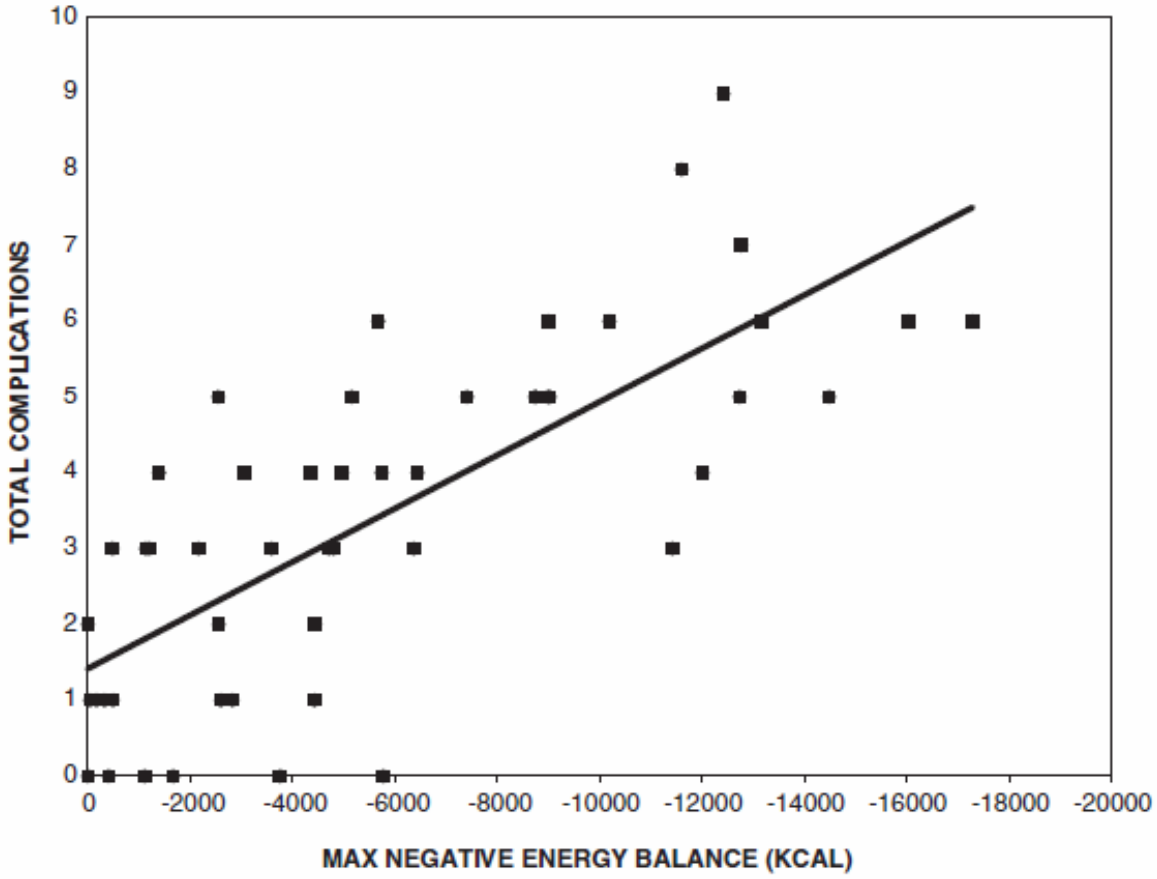


Figure 2 Correlation between the total complications in the 50 critically ill patients and the maximum negative energy balance, calculated as the difference between the measured energy expenditure and the energy intake according to the data provided by the bedside computerized information system data.

Dvir D et al .clin Nutr 2006;25,37

The relationship between nutritional intake and clinical outcomes in critically ill patients: results of an international multicenter observational studv.

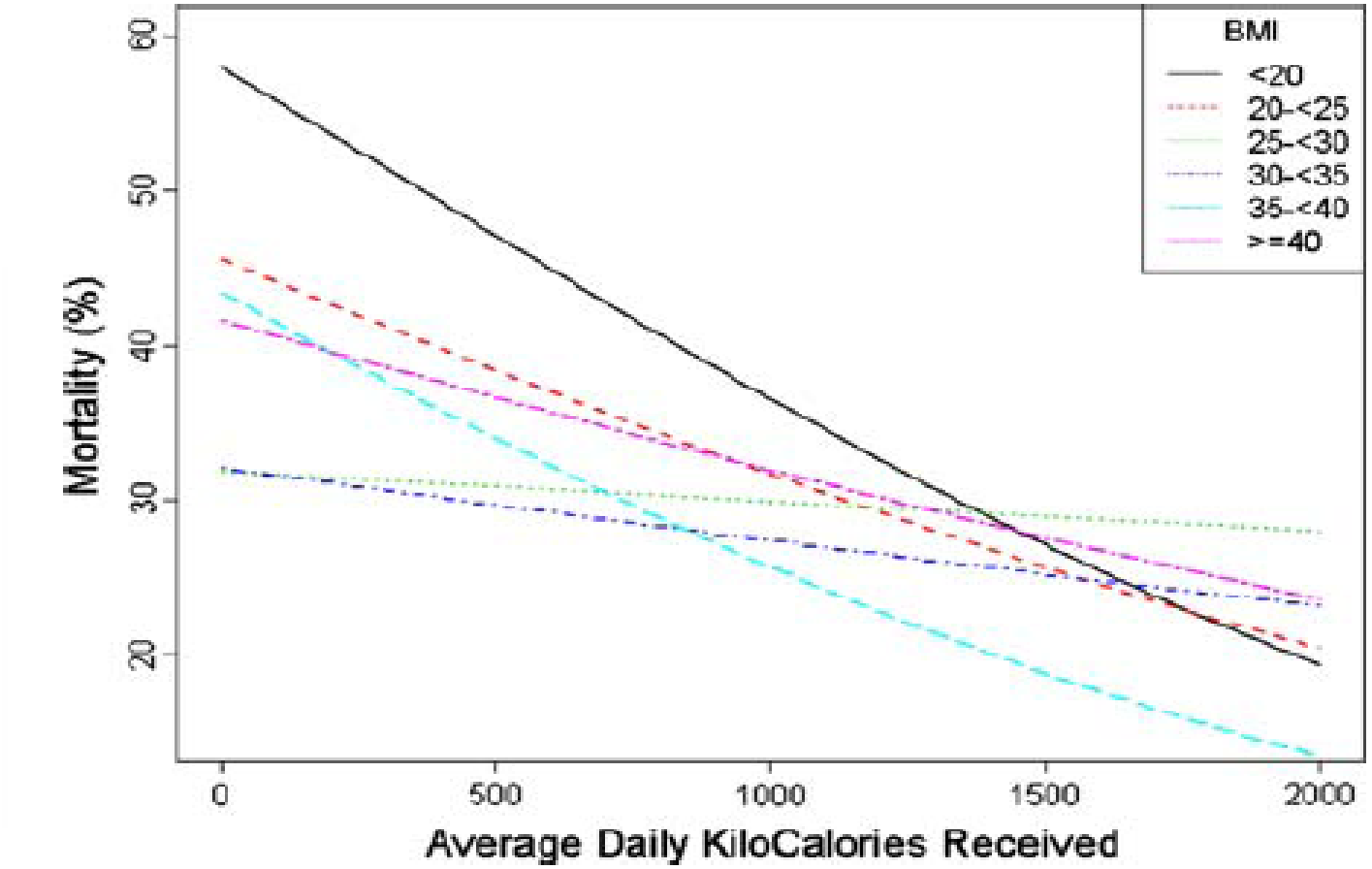
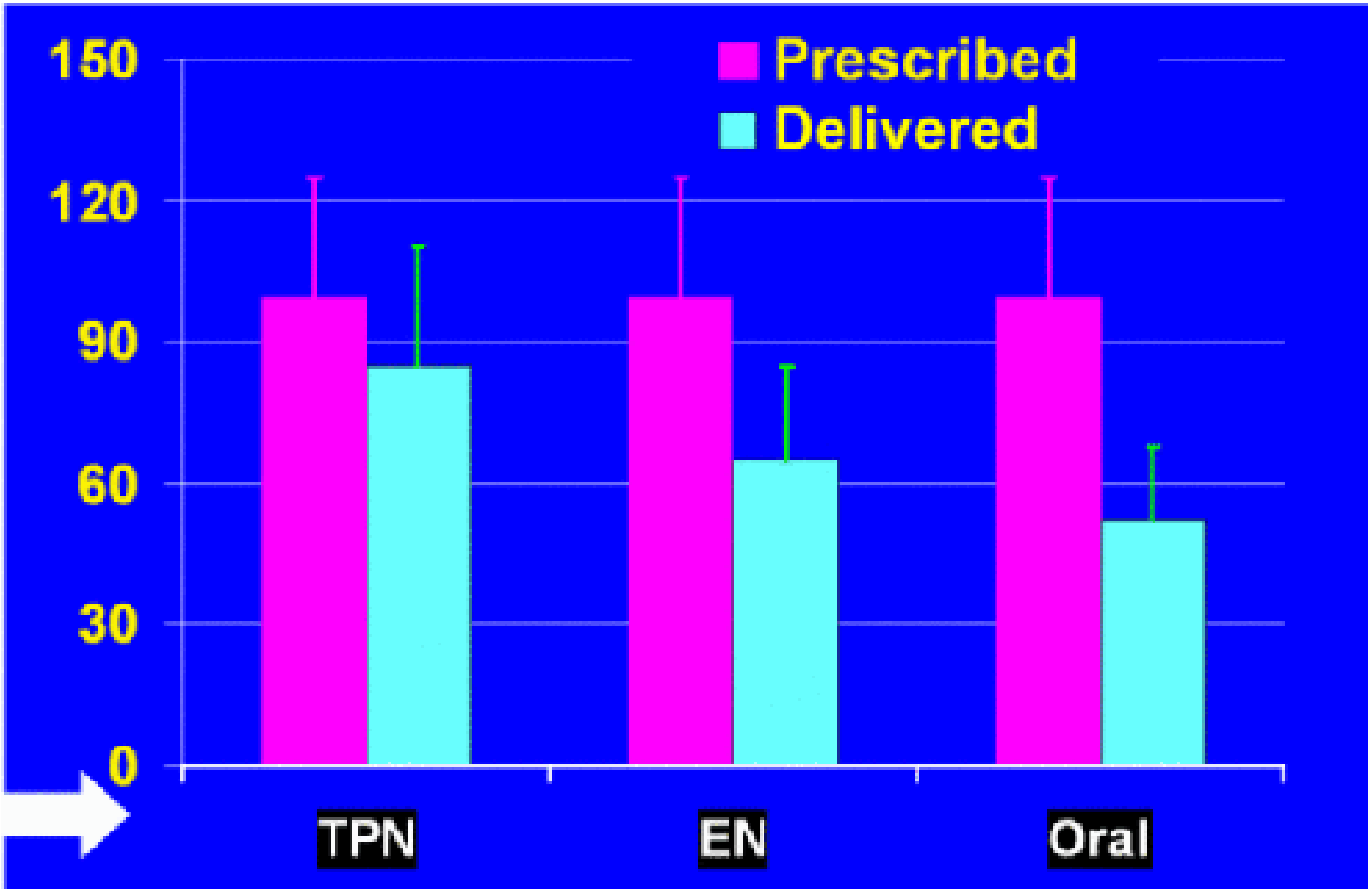


Fig. 1 The relationship between increasing calories/day and 60-day mortality by BMI. *BMI* body mass index

28–1737

A 10-year survey of nutritional support in a surgical ICU: 1986-1995. Berger MM et al. Nutrition 1997; 13: 870-7

Travail prospectif, 171 patients > 3j d'hospitalisation
100 patients avec nutrition artificielle



Enteral nutrition in critically ill patients with severe hemodynamic failure after cardiopulmonary bypass

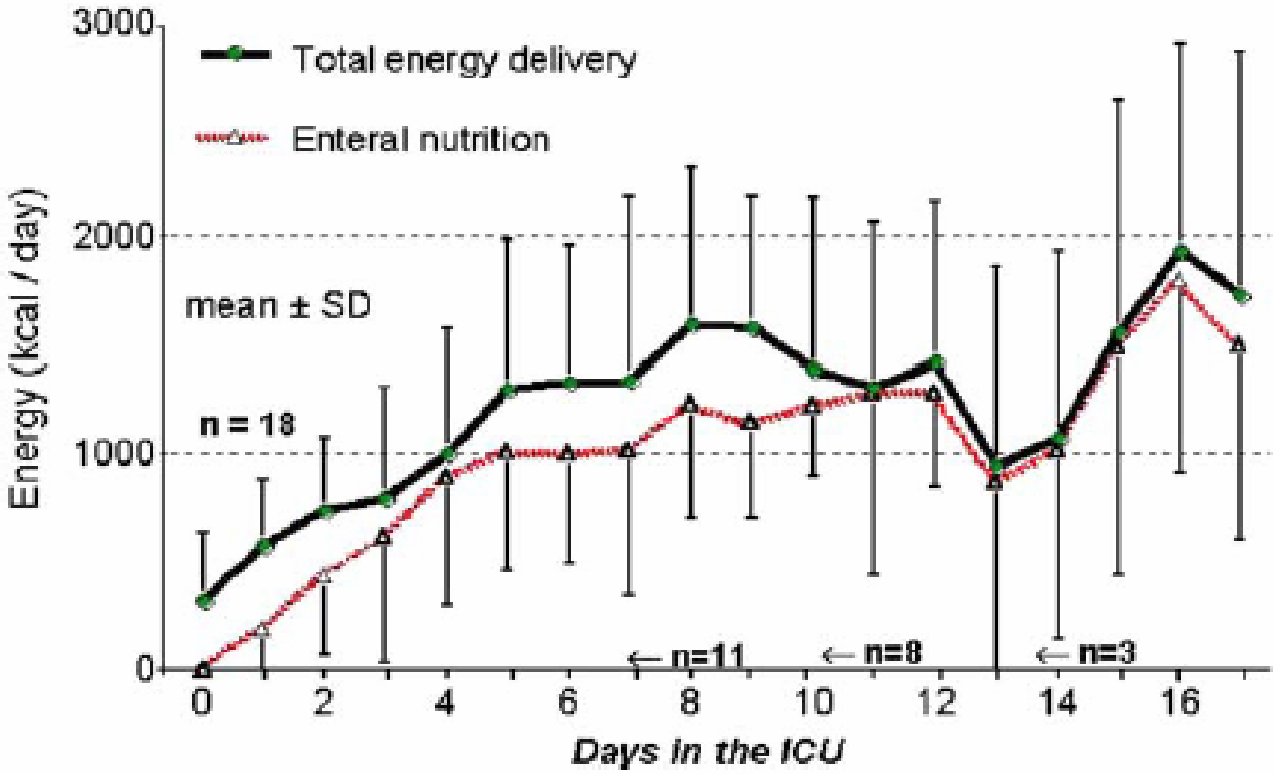
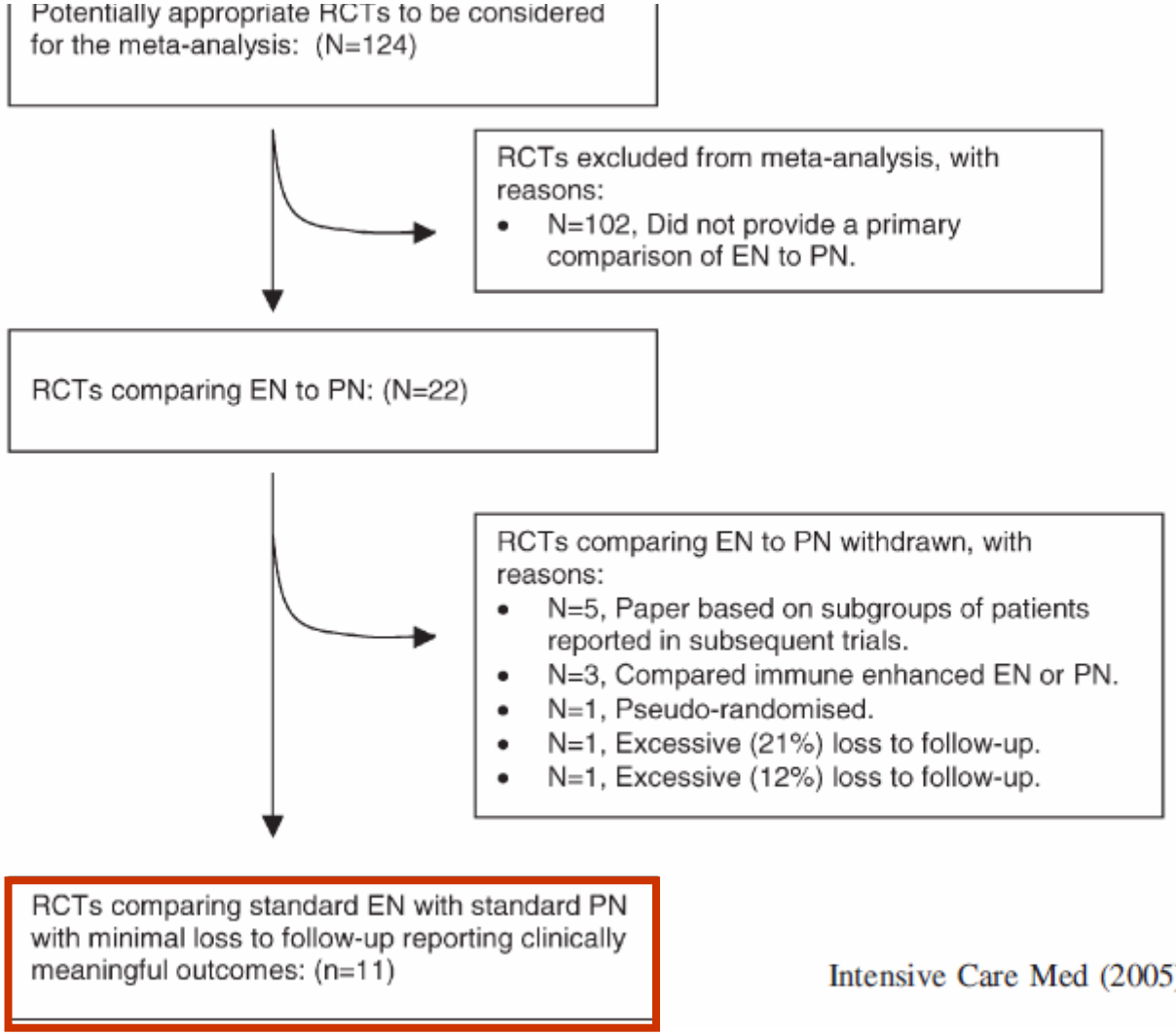


Figure 3 Mean total energy delivery (full line) with the detail of energy provided by enteral nutrition (dotted line) in 18 patients with intra-aortic balloon pump.

Berger MM. Clinical Nutrition (2005) 24, 124–132

Parenteral vs. enteral nutrition in the critically ill patient: a meta-analysis of trials using the intention to treat principle



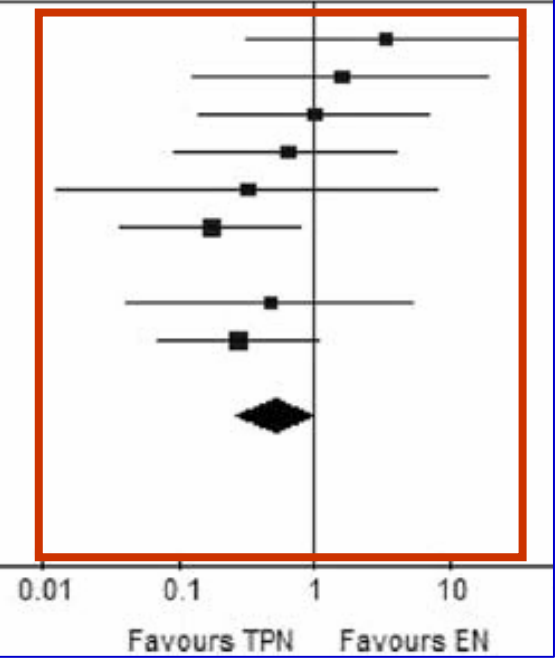
Intensive Care Med (2005) 31:12–23

Parenteral vs. enteral nutrition in the critically ill patient: a meta-analysis of trials using the intention to treat principle

Review: TPN vs EN
Comparison: 03 TPN vs. EN Intention to Treat Trials
Outcome: 01 Mortality

Study or sub-category	TPN n/N	EN n/N	OR (fixed) 95% CI
Adams	3/23	1/23	
Dunham	2/16	1/12	
Gianotti	2/87	2/87	
Kalfarentzos	2/20	3/20	
Kudsk	0/34	1/34	
Rapp	3/20	9/18	
Rayes	0/30	0/30	
Reynolds	1/34	2/33	
Woodcock	5/21	9/17	
Total (95% CI)	285	274	

Total events: 18 (TPN), 28 (EN)
Test for heterogeneity: Chi² = 6.34, df = 7 (P = 0.50), I² = 0%
Test for overall effect: Z = 2.04 (P = 0.04)



CETTE meta-analyse a aboutit à des guidelines

ESPEN Guidelines on Parenteral Nutrition: Intensive care

Pierre Singer[a], Mette M. Berger[b], Greet Van den Berghe[c], Gianni Biolo[d], Philip Calder[e], Alastair Forbes[f], Richard Griffiths[g], Georg Kreyman[h], Xavier Leverve[i], Claude Pichard[j]

The European Society for Parenteral and Enteral Nutrition guidelines for parenteral nutrition in intensive care recommend the administration of supplemental parenteral nutrition within 2 days after ICU admission to patients who cannot be fed sufficiently via the enteral route .

Clinical Nutrition 28 (2009) 387–400

Travaux pronostiques comparatifs

NE seule vs NE + NPT.

Early use of supplemental parenteral nutrition in critically ill patients: Results of an international multicenter observational study

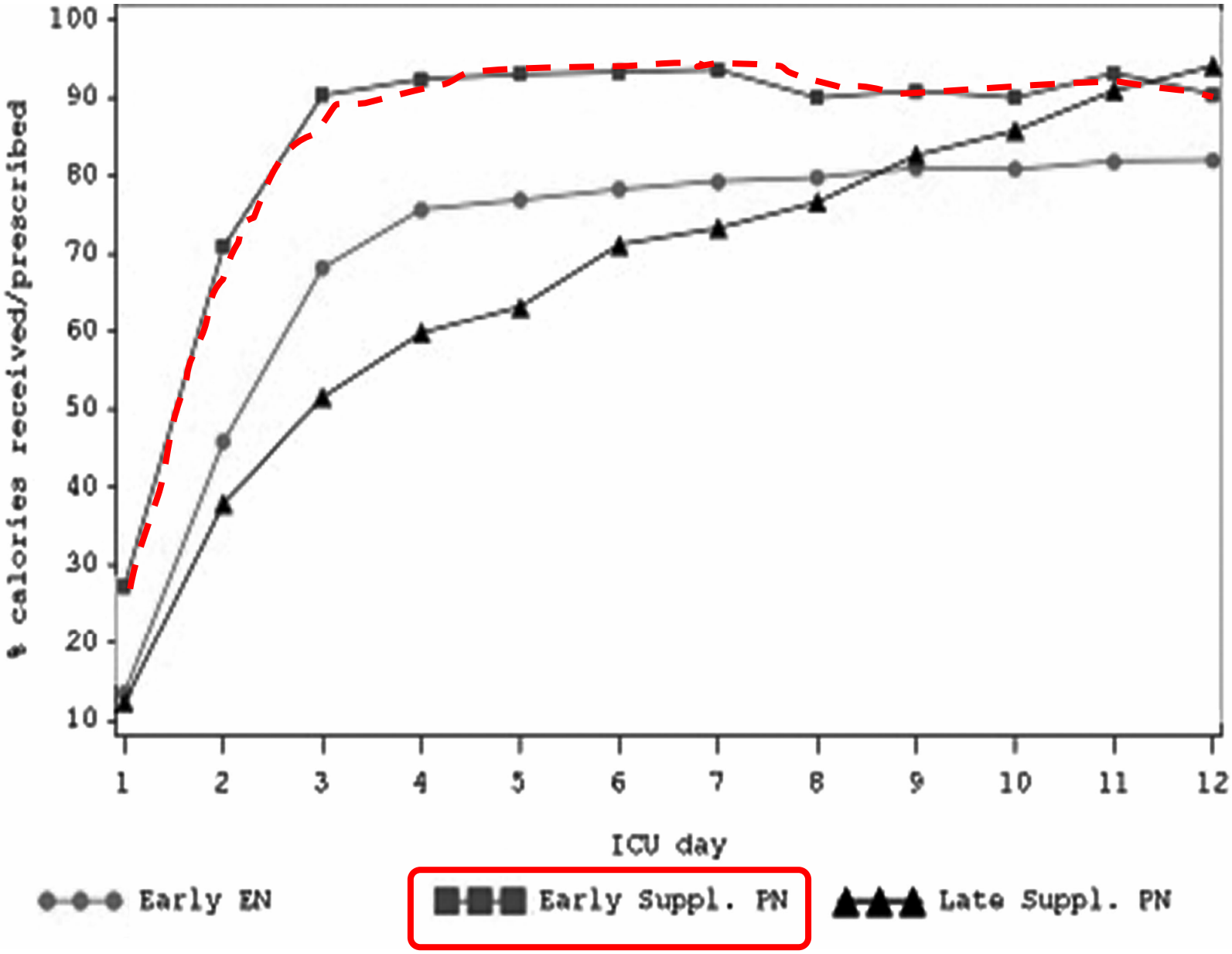
Crit Care Med 2011 Vol. 39, No. 12

Jim Kutsogiannis, MD, MHS; Cathy Alberda, MSc, RD; Leah Gramlich, MD; Naomi E. Cahill, MSc, RD; Miao Wang, MSc; Andrew G. Day, MSc; Rupinder Dhaliwal, BASc, RD; Daren K. Heyland, MD, MSc

Table 1. Characteristics of participating intensive care units

Chara
Number of
Region
Canada
Australia
Zealand
United Sta
Europe ar
China
Asia
Latin Ame
Hospital typ
Teaching
Nonteachi

classified the remaining patients according to three methods of nutritional delivery: 1) early EN alone, 2) early EN and early PN (up to and including 48 hrs from ICU admission), and 3) early EN and late PN (after 48 hrs from ICU admission). Our primary objective was to compare the characteristics, nutritional processes, and clinical outcome variables (ICU/hospital length of stay and mortality) between these three groups of patients.



Equipe de Berger MM. Crit Care Med 2012 Vol. 40, No. 1 1

Impact of early parenteral nutrition completing enteral nutrition in adult critically ill patients (EPaNIC trial): a study protocol and statistical analysis plan for a randomized controlled trial

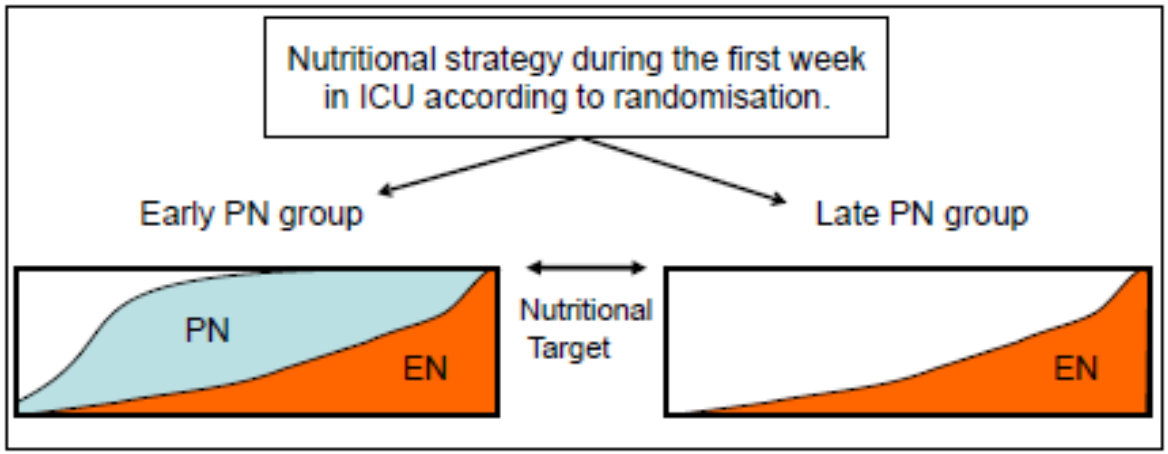


Figure 1 Conceptual cartoon of study design.

maximal target of 2880 kcal/day.
When EN covers 80% of calculated caloric needs,

PN is stopped.

Early PN initiated the second morning in ICU When (NRS ≥ 3)

EN < 80% of calculated caloric needs at day7, initiated PN

Impact of early parenteral nutrition completing enteral nutrition in adult critically ill patients (EPaNIC trial): a study protocol and statistical analysis plan for a randomized controlled trial

Casaer *et al. Trials* 2011, **12**:21

- The primary efficacy endpoint for this RCT is the time to discharge alive from ICU.
- Secondary efficacy endpoints

- Time to discharge alive from the hospital
- Time to final (alive) weaning from mechanical respiratory support
- Proportion of patients in need for renal replacement therapy (RRT) during ICU stay
- Need for pharmacological or mechanical hemodynamic support during ICU stay, and duration of such need.
- Need for a tracheostomy during ICU stay.
- Occurrence of infections during ICU stay

Results non published

CONCLUSION

- Patients de Réanimation:
  - Problème d'intolérance digestive
  - Haut risque de dénutrition/NRS > 3
- NE indiscutable/ insuffisante chez certains patients
- Supplémentation précoce par une NP

MERCI