CRITICAL CARE NUTRITION ACADEMY

Ziekenhuis Gelderse Vallei

Optimaliseren enterale voeding

Arthur R.H. van Zanten, MD PhD

Internist-intensivist

Ede, The Netherlands

E-mail: zantena@zgv.nl

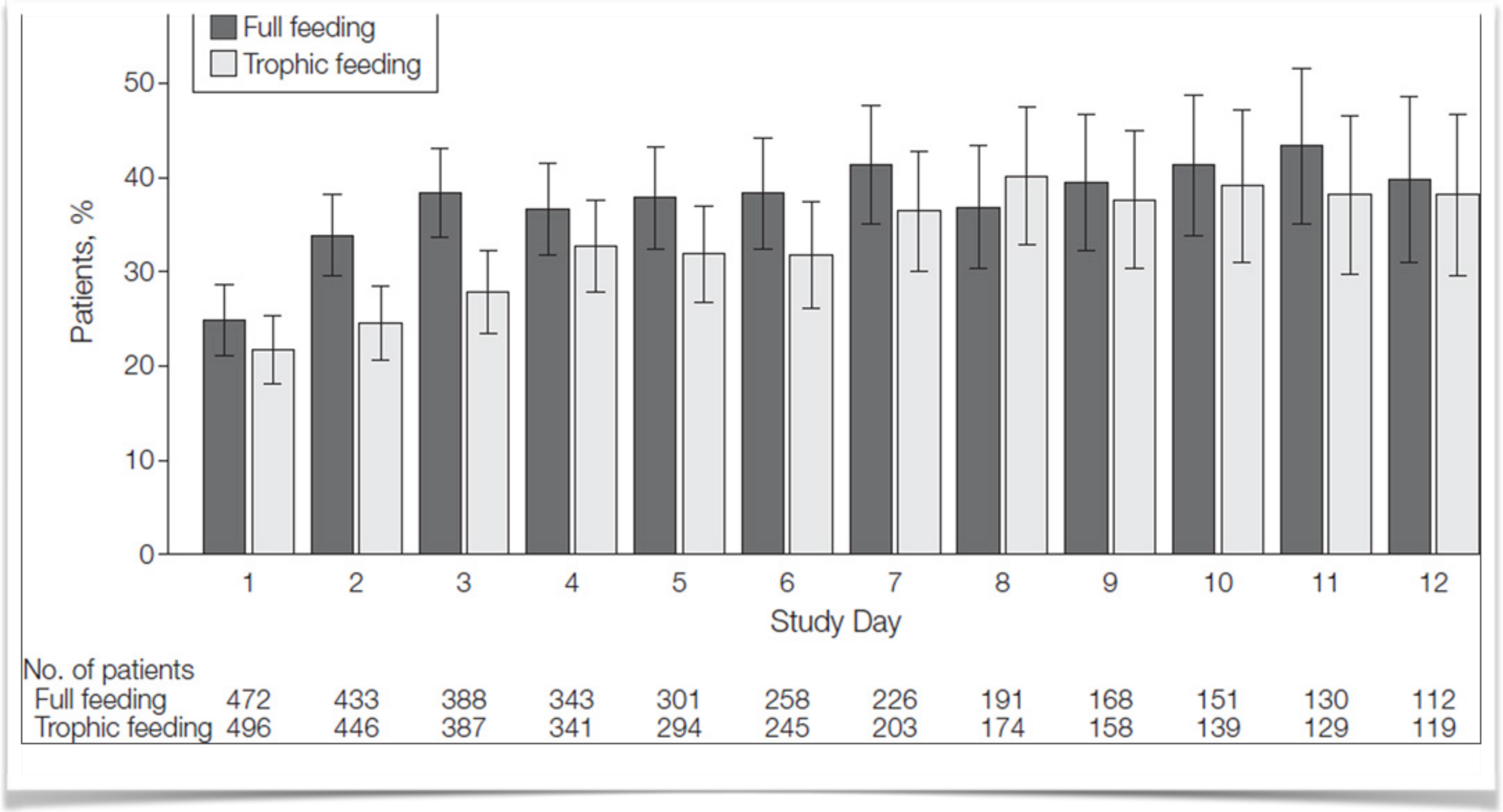
www.criticalcarenutrition.nl

Early Enteral Nutrition in critical illness: your success factors

Success factors: Dos and don’ts

- Early start
- Reduce sedation
- Reduce opioids
- Prokinetics
- Laxatives
- Mobilization
- Head of Bed elevation
- Fibers
- High tolerable tube feeds
- Accept high GRV 500
- Postpyloric feeding tubes
- Abandon GRV measurement

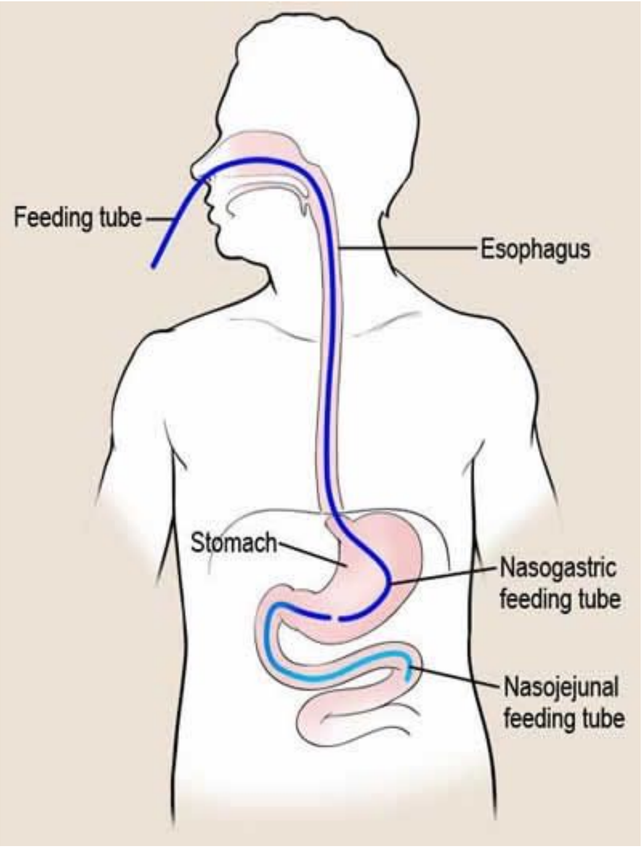
Gastrointestinal intolerance in full versus trophic feeding



Rice TW, et al. JAMA. 2012 Feb 22;307(8):795-803.

Simple guidelines

- Poor correlation GRV and aspiration!
- Do not stop EN residual < 500 mL
- Prokinetic drugs if not tolerated
  - Metoclopramide 4 x 10 mg IV
  - Erythromycin 2 x 200 mg IV
  - Maximum of 7 days
- Small bowel feeding if does not work via postpyloric feeding tube



Should we stop using metoclopramide? Vd Meer, Heyland, Van Zanten. Crit Care 2014

van der Meer et al. Critical Care 2014, 18:502
http://ccforum.com/content/18/5/502

CRITICAL CARE

VIEWPOINT

Should we stop prescribing metoclopramide as a prokinetic drug in critically ill patients?

Y Gert van der Meer[1], Willem A Venhuizen[1], Daren K Heyland[2] and Arthur RH van Zanten[3*]

Commentary

aspen LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION

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Still a Place for Metoclopramide as a Prokinetic Drug in Critically Ill Patients?

Arthur R. II. van Zanten, MD, PhD[1]; Y. Gert van der Meer, PharmD[2]; Willem A. Venhuizen, PharmD[2]; and Daren K. Heyland, MD, MSc[3]

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- **Metoclopramide maximum daily dose of 10 mg four times.**
- **If EN intolerance persists with metoclopramide, add erythromycin for 24 to 48 hours.**
- **If this combination does not work, move to another route of feeding such as postpyloric feeding.**
- **Combination maximum of 7 days to limit side effects and tachyphylaxis.**
- **In cases of renal failure, the dose of metoclopramide should be adjusted.**

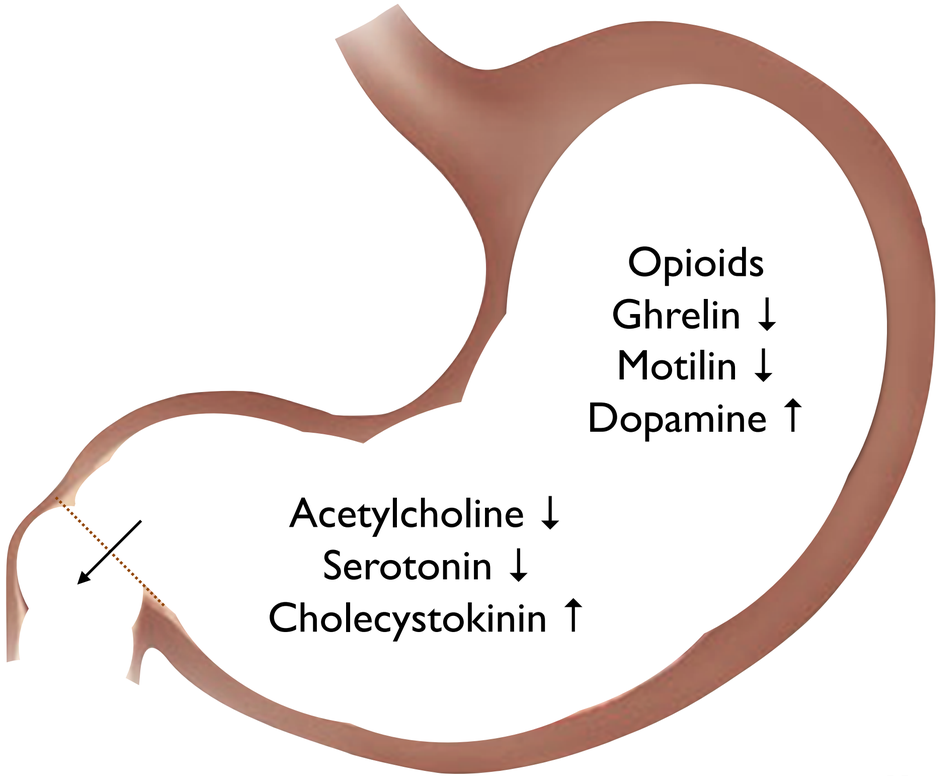
Vd MeerYG, Heyland DK,Van Zanten.AR. Crit Care 2014 & JPEN 2015

Critical illness associated Gastric Motility Dysfunction

Motilin agonists
Erytromycin
Mitemcinal
ABT-229
Camicinal GSK

Ghrelin agonist
Ulimorelin

Cholecystokinin-1 receptor antagonist
Dexloxiglumide



Cholinesterase inhibitor
Neostigmine

Choline receptor agonist
Bethanechol

$D_{2/3}$ (dopamine) receptor antagonists
Metoclopramide
Domperidone

$5HT_{3/4}$ (serotonin) receptor agonists
Metoclopramide
Tegaserod
TD-8954

μ-receptor (opoid) antagonists
Alvimopan
Methylnaltrexone

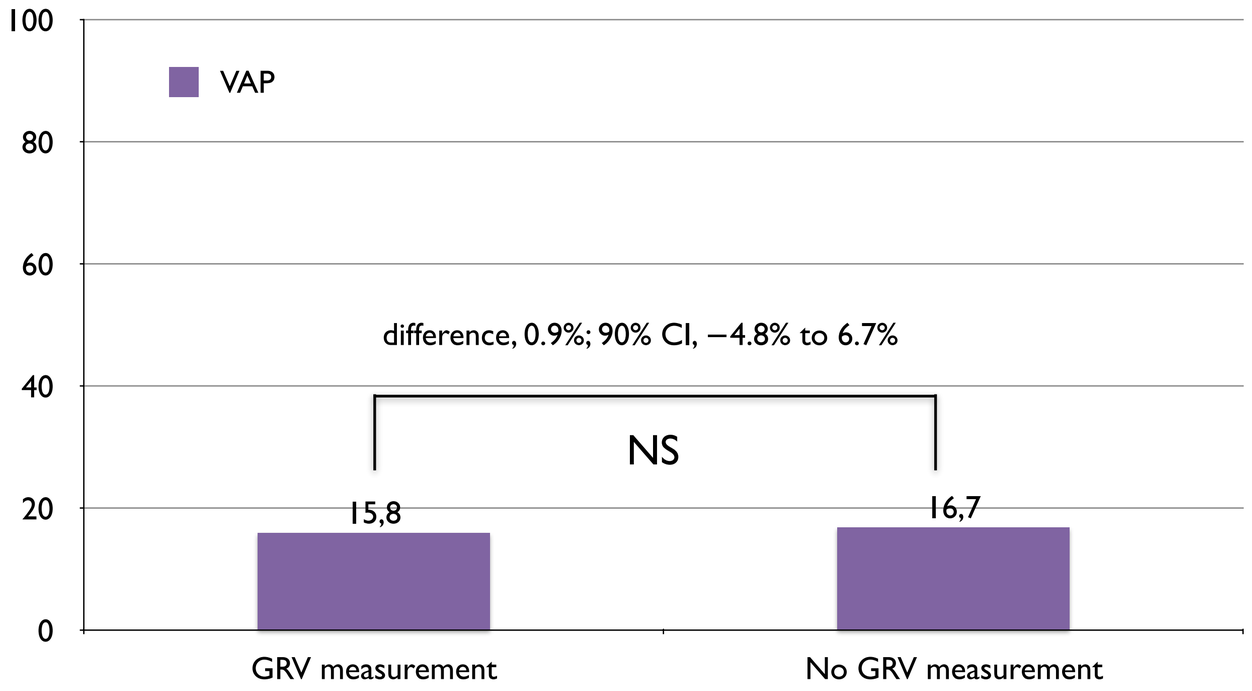
van Zanten AR. Crit Care. 2016 Sep 24;20(1):294.

Can we stop measuring GRV?

Primary endpoint VAP, clinical sign vomiting

452 medical patients <250 mL/6 hrs versus stop measuring GRV in French ICUs

no effect on ICU-acquired infections, mechanical ventilation ICU LOS, or mortality rates.



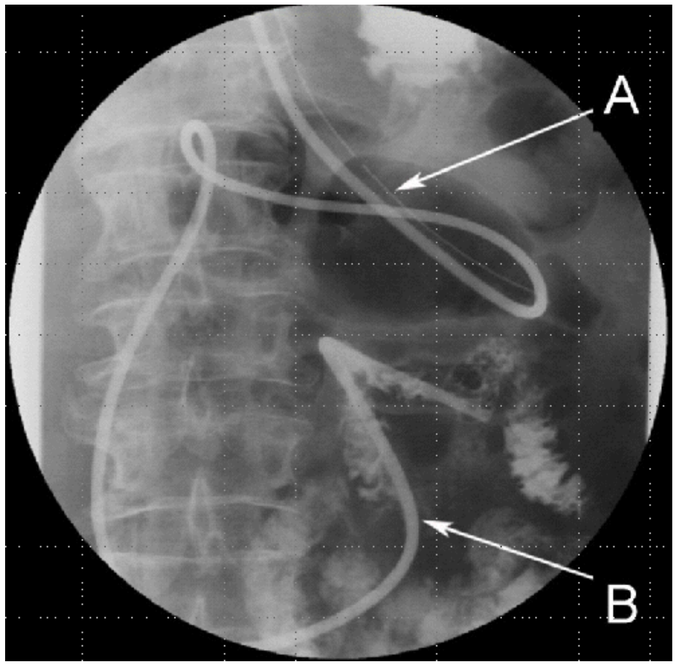
Patients receiving 100% of calorie goal higher in intervention group (OR, 1.77; 90% CI, 1.25-2.51; P = .008).

Reignier J JAMA. 2013;309(3):249-256.

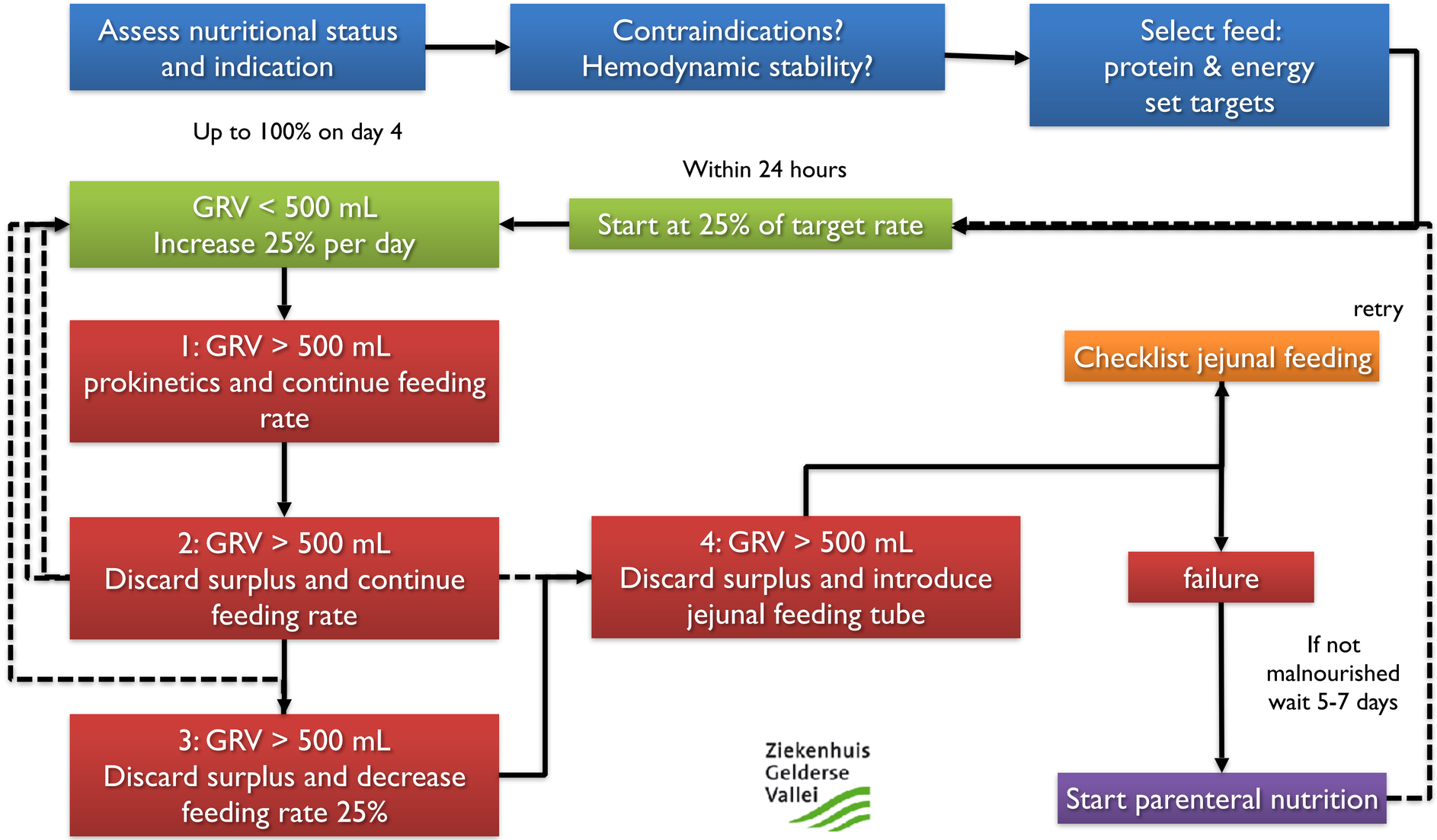
Early Enteral Nutrition in critical illness: how to monitor jejunal tube feeding?

When to stop jejunal feeding?

- Major feeding in gastric residual volume (2 tubes)
- Back flow
- Only GRV without tube feed continue
- Major abdominal distention
- Uncontrolled Vomiting
- Obstruction ileus
- Lower perforation that can not be deviated
- Bowel ischemia
- Intra-abdominal pressure > 20 cm H_2O
- Severe diarrhea



Practical Enteral Nutrition Protocol



ESPEN ICU guidelines 2018

Recommendation 10

Gastric access should be used as the standard approach to initiate EN.
Grade of recommendation: GPP – strong consensus (100% agreement)

Recommendation 11

In patients with gastric feeding intolerance not solved with prokinetic agents, postpyloric feeding should be used.
Grade of recommendation: B – strong consensus (100 % agreement)

Recommendation 12

In patients deemed to be at high risk for aspiration, postpyloric, mainly jejunal feeding can be performed.
Grade of recommendation: GPP – strong consensus (95 % agreement).

ESPEN ICU guidelines 2018

Recommendation 13

In critically ill patients with gastric feeding intolerance, intravenous erythromycin should be used as a first line prokinetic therapy.
Grade of recommendation: B – strong consensus (100% agreement)

Recommendation 14

Alternatively, intravenous metoclopramide or a combination of metoclopramide and erythromycin can be used as a prokinetic therapy.
Grade of recommendation: 0 – strong consensus (100 % agreement)

Conclusions

- Early start
- Reduce sedation
- Reduce opioids
- Prokinetics
- Laxatives
- Mobilization
- Head of Bed elevation
- Fibers
- High tolerable tube feeds
- Accept high GRV 500
- Postpyloric feeding tubes
- Abandon GRV measurement