Fresenius Kabi solutions for critically ill patients

Fresubin® Clear Thickener

- Instant food and beverage thickener with a unique blend of starch and gum used for the dietary managment of patients with dysphagia

Fresubin® 2 kcal DRINK

- High protein oral nutritional supplement (20 g / bottle)
- Broad variety of sweet and savoury flavours to support better compliance

Fresubin® 2 kcal Crème

- High protein oral nutritional supplement (12.5 g / cup)
- Spoonable alternative to sip feeds in a variety of flavours e.g. for patients with dysphagia

Burns & trauma

Intestamin®

- Low energy and small volume supplement
- High in glutamine (30 g / 500 ml) and antioxidants

Acute phase early period

Fresubin® Intensive

- High protein tube feed to meet the needs of critically ill patients
- 100 % hydrolysed whey protein (50 g / 500 ml) and moderate in calories (610 kcal / 500 ml) to prevent overfeeding

Recovery phase

Fresubin® 2 kcal HP / 2 kcal HP Fibre

- High protein and high energy tube feed with or without fibre
- For periods of high energy and protein needs (>1.3 g protein / kg body weight)

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caring for life

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Recommendations for nutrition support in Intensive Care – a decision tree

According to new ESPEN ICU guidelines 2018

Recommendations for enteral nutrition

Adapted from Singer P et al. Clin Nutr 2019;38(1):48-79.

Evaluation of patient

ICU admission: Is patient expected to stay in ICU >48 h? (Rec 1)

- No → Medical nutrition support not currently required
- Yes → Patient is "at risk for malnutrition" and should be considered for medical nutrition support (Rec 1, statement 1)

Are there any reasons to delay enteral nutrition, such as uncontrolled shock or active upper GI bleeding?* (Please refer to rec 38)

- Yes → Delay EN, consider starting PN within 3-7 days (Recs 6 & 38)
  Early & progressive PN can be provided instead of no nutrition in severely malnourished patients (Rec 7)
- No → **Is patient able to eat?** (Rec 3)
  - No → Start tube feeding within 48 hours of admission (Rec 4)
  - Yes → **Does the patient have dysphagia?** (Rec 42)
    - Yes → Consider texture-modified foods (Rec 42)
    - No → Is the patient meeting >70% nutritional targets by day 3-7? (Recs 3 & 41)
      - Yes → Continue, monitor intake
      - No → Consider oral nutritional supplements (Rec 41) → Is the patient meeting >70% nutritional targets? (Rec 41)
        - Yes → Continue, monitor intake
        - No → Start tube feeding (Rec 41)

Gastric access should be used as **standard** (Rec 10)
In case of feeding intolerance or high aspiration risk consider **postpyloric access** and/or prokinetics (Recs 11-14)
Give continuous rather than bolus EN (Rec 9)

Evaluation of nutritional requirements

Protein requirements
1.3 g/kg BW protein equivalents per day can be delivered progressively (Rec 22)

Specific nutrients
Consider specific enteral nutrients

OMEGA-3
High doses of omega-3-enriched EN should not be given by bolus administration (Rec 30) or routinely (Rec 32)
EN enriched with omega-3 within nutritional doses can be administered (Rec 31)

GLUTAMINE
Trauma: Consider additional enteral glutamine 0.2-0.3 g/kg/day for 5 days alongside EN (in case of wound healing it can be administered for 10-15 days) (Rec 27)
Burns (>20% body surface area): Consider additional enteral glutamine (0.3-0.5 g/kg/day) for 10-15 days alongside EN (Rec 26)

Energy requirements
Is indirect calorimetry available to measure energy expenditure (EE)?

- No → Estimate EE using VO_2 or VCO_2 or predictive/weight-based equation (e.g. 20-25 kcal/kg/d) to define calorie target (Statement 2)
- Yes → Measure EE to define calorie target (Rec 15)

Enteral nutrition prescription

Start "Hypocaloric feeding" and increase progressively. Do not exceed 70% of estimated energy expenditure before day 7 (Recs 17 & 19)

Start "Hypocaloric feeding" (<70% measured energy expenditure) (Rec 17)
→ After day 3 progress to "Isocaloric feeding" 80-100% of measured energy expenditure (Recs 16 & 18)

***Recommendation 38. EN should be delayed:** if shock is uncontrolled and hemodynamic and tissue perfusion goals are not reached, whereas low dose EN can be started as soon as shock is controlled with fluids and vasopressors/inotropes, while remaining vigilant for signs of bowel ischemia; • in case of uncontrolled life-threatening hypoxemia, hypercapnia or acidosis, whereas EN can be started in patients with stable hypoxemia, and compensated or permissive hypercapnia and acidosis; • in patients suffering from active upper GI bleeding, whereas EN can be started when the bleeding has stopped and no signs of re-bleeding are observed; • in patients with overt bowel ischemia; • in patients with high-output intestinal fistula if reliable feeding access distal to the fistula is not achievable; • in patients with abdominal compartment syndrome; and • if gastric aspirate volume is above 500 ml/6 h. **Disclaimer:** This infographic is provided as a guide for understanding the flow of recommendations included in the 2018 ESPEN ICU guidelines and should never be solely used to decide on a nutrition intervention. A formal dietetic assessment including consultation with the medical team as appropriate should always be performed prior to any nutritional intervention.