Nutrition in ICU

Summary guide of "ESPEN guideline on clinical nutrition in the intensive care unit" (Singer 2019)

General Principles

- ICU patients > 48 hrs need medical nutrition therapy
- Every patient needs a clinical assessment of nutritional risk

Electrolytes and glucose

- 4H glucose + insulin if >10mmol/L
- Daily K, PO4 and Mg
- If refeeding syndrome measure PO4 2-3/day and replace

Micronutrients and antioxidants

- Provide micronutrients in PN
- High dose antioxidants should not be given
- Vit D supplementation if deficient (25-OH-D <12.5ng/mL)

Timing / Route

- Oral route preferred if available
- If no oral route, EN within 48 hours
- If no oral or EN route, PN by 3-7 days
- If no oral/EN and severe malnutrition, consider early PN
- Gastric (not post-pyloric route is standard)

Intolerance (GRV >500mL)

- Stop EN and exclude acute abdomen
- Erythromycin or erythromycin and metoclopramide
- Post-pyloric feeding if no response to prokinetics or high aspiration risk

Low dose EN

- Therapeutic hypothermia
- IAH without ACS
- Acute liver failure

Energy

- Use IC if available
- If no IC, VO2 and VCO2 more accurate than equations
- <70% of EE day 1-3
  80-100% of EE day 3-7
- If using equations <70% EE day 1-7

Delay EN

- Shock, hypoxaemia, hypercapnea, acidosis or GI bleeding
- Bowel ischaemia
- High output intestinal fistula
- ACS
- Gastric volume >500mL

Protein

- 1.3g/kg protein equivalents per day

Glutamine and essential FAs

- No routine supplementation of glutamine
- Burns >20% 0.3-0.5g/kg/d for 10-15 days
- Trauma 0.2-0.3g/kg/day for 5 days
- Omega-3 in EN in nutritional doses only
- EPA and DHA 0.1-0.3g/kg/day can be given

Carbohydrate / Fat

- Do not exceed 5mg/kg/min of glucose (PN)
- Do not exceed 5mg/kg/min of carbohydrate (EN)
- Do not exceed 1.5g/kg/day lipids

Specific Conditions

- **Sepsis** - early and progressive EN after haemodynamic stabilisation
- **Post GI surgery** - avoid EN only if discontinuity, obstruction or compartment syndrome
- **Obesity** - isocaloric high protein diet guided by IC and urinary nitrogen losses (or adjusted BW if not available)

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