



SURGICAL CARE & PERIPHERAL PARENTERAL NUTRITION

PREHABILITATION

TACKLING MALNUTRITION IN THE SURGICAL PATIENT

- Up to 65% of patients undergoing surgery are at risk of malnutrition.¹
- Malnutrition increases morbidity, mortality, risk of postoperative complications, duration of hospitalization and healthcare costs.²⁻³



Enhanced recovery programs are multimodal perioperative care pathways designed to achieve early recovery for patients undergoing major surgical procedures.

Prehabilitation is a multidisciplinary strategy for conditioning risk patients for surgery to optimize postoperative outcomes and recovery.⁵

- Bernard
- 72 years
- Esophageal cancer
- Admitted for elective esophagectomy
- Good peripheral venous access



NUTRITIONAL ASSESSMENT

- Screen for malnutrition in every patient on admission or first contact^{1,5}
- Assess nutritional status before and after major surgery⁵
- Identify high risk patients who will benefit from preoperative nutritional therapy, e.g.,
 - Pre-existing malnutrition¹
 - Major gastrointestinal cancer surgery¹
 - Esophageal resection⁶
- Initiate perioperative nutritional support therapy without delay⁵



- Body weight: 65 kg/Height 185 cm/BMI: 16.9
- Lost 6 kg in the past 30 days
- Subjective Global Assessment grade C

Bernard is identified to be at high nutritional risk. In view of the forthcoming cancer surgery, nutritional therapy urges.

NUTRITION THERAPY

Set nutritional targets and choose the adequate route of nutrition support

- When requirements cannot be adequately met by oral nutrition supplements / enteral nutrition, preoperative parenteral nutrition is indicated^{1,5}



Peripheral parenteral nutrition

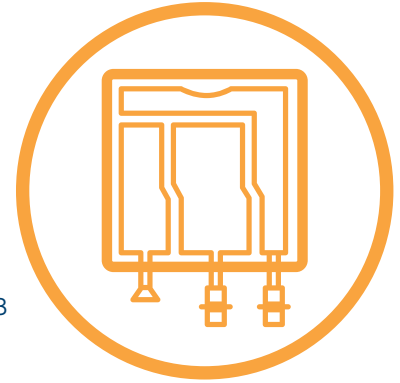
- Infusion of a nutritionally complete solution with a low osmolarity (≤ 900 mOsm/L) into a peripheral vein⁷⁻⁹
- To avoid delays when nutritional therapy urges⁸
- For limited periods of time (10 to 14 days)⁷⁻⁹
- To bridge the gap where oral intake or enteral nutrition is suboptimal⁷

- Caloric target: 25 kcal/kilogram bodyweight/day
- Oral nutrition supplements implemented at admission, but not tolerated
- Enteral nutrition started according to gastric tolerance, but insufficient to cover caloric need

Bernard's nutritional needs cannot be met by oral/enteral intake.

BENEFITS OF PERIPHERAL PARENTERAL NUTRITION

- Allows for immediate delivery of adequate energy and nutrients⁸
- Less invasive than central parenteral nutrition, no need of central venous catheter placement⁸
- Low risk of complications, especially when the care and follow-up are provided by a nutritional support team⁹
- Reduced workload for healthcare professionals¹⁰
- Commercially available 3-chamber bags are safe and well tolerated¹⁰



Peripheral parenteral nutrition makes your patients fit for surgery to comply with enhanced recovery protocols

To reach Bernard's nutritional targets, peripheral parenteral nutrition is started as soon as possible.

This helps improve Bernard's preoperative nutritional status and results in less loss of lean body mass⁴ for optimal postoperative outcome and recovery.

PRE-OPERATIVE CAUSES OF NUTRITIONAL DEFICIT:

Chronic low-grade inflammation from neoplastic underlying disease

Altered nutrient utilization secondary to the metabolic state

Reduction in oral intake and tolerance of normal food

Perioperative fasting

Gastrointestinal tract dysfunction/Inadequate absorption of nutrients

Stress-related anorexia

Increase in nutritional requirements

Increase in nutrient losses

ADEQUATE NUTRITIONAL THERAPY:

Optimizes glucose control

Attenuates the stress response

Modulates inflammation and immune response

Attenuates the hypermetabolic response to surgery

Optimizes wound healing and recovery

CLOSING THE NUTRITIONAL GAP^{2,4,11}

The prehabilitation period represents an attractive time window before surgery to:

- prevent and reduce malnutrition and nutritional deficits
- optimize the patient's nutritional and metabolic status

In order to:

- reduce postoperative complications
- improve postoperative outcome and recovery

References

1. Wischmeyer PE, Carli F, Evans DC, et al. Anesth Analg 2018;126(6):1883-1895.
2. Pache B, Hübner M, Jurt J, et al. J Surgical Oncology 2017;116(5):613-6.
3. Allard JP, Keller H, Jeejeebhoy KN, et al. JPEN J Parenter Enteral Nutr 2016;40(4):487-497.
4. Gillis C, & Wischmeyer PE. Anaesthesia 2019;74 (Suppl. 1):27-35.
5. Weimann A, Braga M, Carli F, et al. ESPEN guideline: Clinical nutrition in surgery. Clin Nutr 2017;a36(3):623-50.
6. Alberda C, Alvaj-Korenic T, Mayan M, et al. Nutr Clin Pract 2017;32(5):664-674.
7. Worthington P, Balint J, Bechtold M, et al. JPEN J Parenter Enteral Nutr. 2017;41(3):324-377.
8. Gura KM, Nutr Clin Pract 2009;24(6):709-717.
9. Correia MI, Guimarães J, de Mattos LC, et al. Nutr Hosp 2004;19(1):14-8.
10. Yu J, Wu G, Tang Y, et al. Nutr Clin Pract 2017;32:545-551.
11. Evans DC, Martindale RG, Kiraly LN, et al. Nutr Clin Pract. 2014;29(1):10-21.



www.nutritionevents.com



**FRESENIUS
KABI**

caring for life

Fresenius Kabi
61346 Bad Homburg, Germany
www.nutritionevents.com