Weaning parenteral nutrition

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Why?

- Improved survival if on PN <2 years\(^1\)
- Reduced complications:
  - Associated with improved survival\(^2\)
- European survey
  - 18% suitable for transplant, 2% weaned off HPN within 2 years\(^3\)
- Quality of life
  - Increased number of infusions\(^4\)
  - Daily CVC use\(^5\)
  - Duration of HPN\(^6\)
  - Fatigue induced by nocturia\(^7\)
  - Fear of complications: CVC infections and liver failure\(^8\)

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Who?

- Short bowel
  - Non malignant n=40, 12.5% rate of weaning\(^1\)
  - Non malignant n=39, 23% rate of weaning\(^2\)
- Highest rate of weaning in patients with Crohn’s disease, mesenteric infarction, fistula closure, presence of colon and ICV
- Negative effect of deterioration in nutritional status\(^3\)

To determine the effects of restoring bowel continuity on PN requirements after mesenteric infarction

- A retrospective review of data on patients from 2000 to 2010.
- 113 patients (61 women, median age 54 years)
- Fifty-seven (49%) patients had restoration of bowel continuity.
- PN was stopped within 1 year in 20 (35%), within 2 years in 29 (50%) patients and within 5 years in 44 (77%) patients ($P = 0.001$)

Conclusion: Anastomosis of remaining jejunum to colon can allow PN to be stopped
Issues to consider

- Length & quality of bowel, presence of colon & ICV
- Absence of disease in remaining bowel
- Nutritional status
- Need to optimise food & fluid management based on anatomy
- Ability to consume hyperphagic diet
  - Difficulties adhering to short bowel regimen
- Patient understanding and education
  - Provide written information and educational sessions
- Experienced MDT
How?

- Provide minimum amount of parenteral support to maintain acceptable nutritional status & prevent dehydration
- Manage patient expectations
- Intensive in patient stay\(^1\)
  - 18 HPN patients admitted to a specialist ward
  - 7 weaned (39%)

Establish goals

Patient education

Optimise nutrition, hydration & medications

Is hydration adequate?
- U/O >1L/d & ≥0.5ml/kg/h on nights off
- Urea & Creatinine
- Urine sodium

Is nutrition adequate?
- 80% of energy orally
- ≤1.5kg loss between ↓
- Acceptable GI output
- Stable electrolytes

No

Yes

No

Attempt to reduce HPN

Monitor electrolytes & micronutrients

Adapted from Dibaise et al (2006) J Clin Gastroenterol, 40;S94
HPN patient gaining weight

- **Energy**
  - **↓ Energy**

- **Fluid**
  - Fluid dependent
  - Not fluid dependent

- **Options**
  - ↓ Lipid kcal
  - ↓ Glucose kcal
  - Stop nutrition give fluid & electrolytes
  - ↓ PN bags/week

Avoid consecutive nights off initially
HPN patient losing weight

- **Energy**
  - Fluid dependent
  - Not fluid dependent

- **Fluid**
  - Fluid dependent
  - IF protocol (must check glucose)

- **Regime**
  - IF protocol
  - Introduce calorie bags

- **Options**
  - ↑ Glucose kcal
  - ↑ Lipid kcal
  - Introduce calorie bags (must check glucose)
  - ↑ Glucose kcal
  - ↑ Lipid kcal
  - ↑ PN bags/week
Micronutrients

- High prevalence of deficiencies in short bowel & HPN\(^1\)
- Causes:
  - underlying condition
  - increased intestinal losses
  - inadequate provision.
- Prevention and treatment is important during weaning from HPN to promote adaptation\(^2\)
- Problematic due to lack of reliable biochemical assays especially in the context of the acute phase response.
- The American Gastroenterological Association have guidelines on the provision of micronutrients in PN\(^3\)
- Need to introduce oral micronutrients

Degree of malabsorption

Intestinal insufficiency

Intestinal failure

Reduce PS time

Days off PS

Weaned off PS

Compensatory fluid or nutrition support

Degree of malabsorption

Time

Parenteral support

PS=Parenteral Support
Summary

Withdrawal should be planned and stepwise with a daily review of progress (in patients)
No evidence to support the most effective way of weaning (NICE 2006)

Key dietetic role

- Risk of deterioration in nutritional status if requirements not met
- Risk assessment regarding catheter infections
- Patients need support and advice from an experienced MDT