An audit to review Total Parenteral Nutrition (TPN) use in surgical patients in critical care in University Hospital Waterford

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Introduction

- TPN is widely used in critical care settings nationally; however, significant variation exists between centres regarding the use of peripheral versus central venous access and the implementation of out-of-hours prescribing policies.
- Clinical observation within our institution suggested that TPN was frequently initiated for shorter durations than recommended and often for non-standard indications. Current ESPEN 2025 surgical guidelines recommend commencing TPN if NPO for 5 days or expected to be NPO for >7 days[1] if the gut is inaccessible.
- The aim of this study was to evaluate current practices surrounding PN use within critical care at University Hospital Waterford (UHW), including route of infusion, use of out-of-hours regimens, duration of TPN administration, indications for PN initiation, and timing of transition to oral or enteral nutrition.

Methods

- An audit tool was developed to collect data prospectively on TPN use within the critical care setting. All adult patients commenced on TPN in critical care under the care of a surgical team were included in the audit.
- Data collection was carried out collaboratively by the dietetics and anaesthetics teams.

Results

The audit ran for a period of 6 months . A total of 20 patients were collected. 18 patients were included (x2 excluded as not under the care of a surgical team).

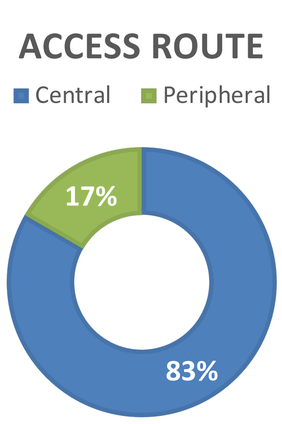

Figure 1: Access routes used to infuse TPN

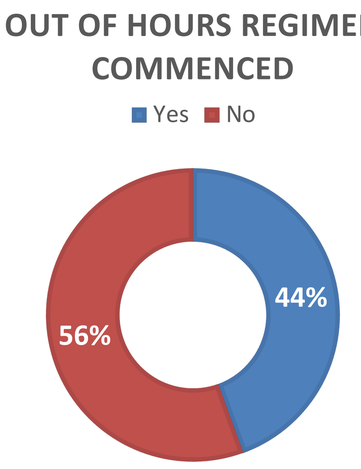

Figure 2: Use of out of hours policy

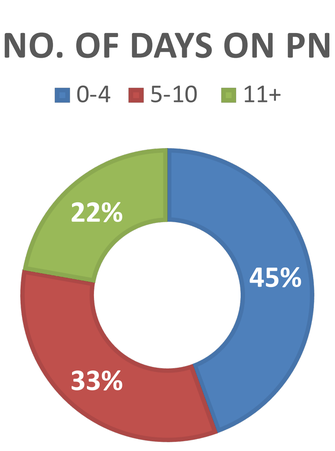

Figure 3: Average duration of TPN

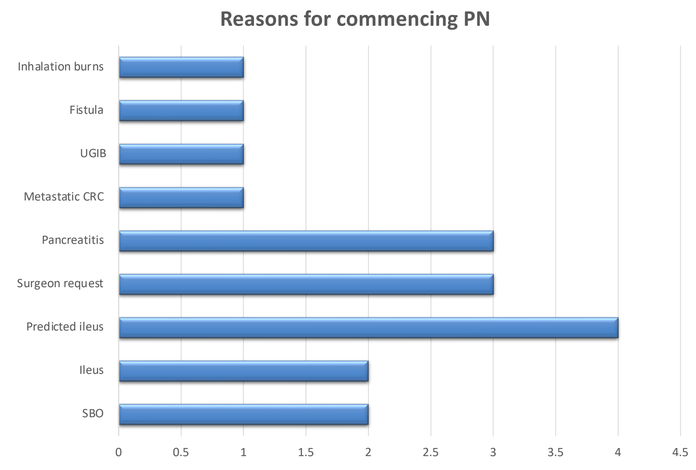

Figure 4: Reasons for referral for TPN

Conclusion

Patients appear to be commenced on TPN prematurely as 44% were discontinued within 5 days. Average duration appears appropriate. Education with prescribing teams may be required to ensure TPN is not commenced when enteral feeding is appropriate.

Further education and engagement with prescribing surgical teams is required to ensure appropriate use of TPN within critical care. A repeat audit in 6-12 months following this would be beneficial to assess whether TPN prescribing practices have improved.

References - [1]Weimann, A., Bezmarevic, M., Braga, M., Ljungqvist, O., Soeters, P., Waitzberg, D. L. and Wischmeyer, P. E. (2025) 'ESPEN guideline on clinical nutrition in surgery - Update 2025', Clinical Nutrition, 53, pp. 222-261. doi: 10.1016/j.clnu.2025.08.029.
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