Parenteral Nutrition - Full Clinical Guideline - DERBY

Reference no.:CG-GASTRO/2024/022

Introduction and scope of guidelines

This guideline is for use within Derby Teaching Hospitals NHS Foundation Trust. It has been developed in collaboration with the Nutrition Team, Gastroenterology Consultants, Surgical Consultants and Critical Care. Parenteral Nutrition (PN) will be given under the direct supervision of the Nutrition Team only.

Abbreviations

PN Parenteral Nutrition

EN Enteral Nutrition

GI Gastrointestinal

CVC Central Venous Catheter

CRBSI Catheter Related Blood Stream Infection

CRP C-reactive protein

LFTs liver function tests

CBG capillary blood glucose

NG nasogastric

Indications

- Gut failure, due to non-function, proximal enterocutaneous fistula causing nutritional and/or fluid deficit or surgical resection, with an expected requirement of at least 7 days Inaccessible GI tract expected to be longer than 7-10 days.
- Post-operative patients who cannot meet their nutritional requirements enterally after 5-7 days.
- PN will be considered pre-operatively in malnourished patients/at severe nutritional risk where nutritional requirements cannot be adequately met orally or by enteral nutrition (EN).

Referrals

Referrals are made using Extramed to Nutrition team. (Access extramed, select Teams on menu, then scroll down to services and then drop down to Nutrition Team). Refer before 9.30 to be seen the same day. This is a Monday to Friday service during standard working hours only. Out of hours PN is not available. PN will only be started by the Nutrition Team. Urgent referrals should be phoned to the current Nutrition Consultant. Referrals should be made by the parent specialty team.

Pre-assessment

Pre-assessment should be done by the requesting team and includes

- Premorbid and current weight,
- Blood test including U+E, Mg, PO_4, Ca, FBC, Clotting, LFTs, CRP and micronutrient profile on lorenzo
  - Accurate fluid balance chart needs to be completed as well as a food chart if relevant. Observations, temperature, pulse, BP and respiratory rate to be measured every 6 hours at a minimum. An accurate fluid balance chart should be kept to include all oral and iv intake and all output including vomit, NG, stoma, fistula, drain, urine and stool measurements.
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- Ensure pabrinex is prescribed if refeed risk
- Consideration of route of administration needs to be made. Do not request line placement until PN is agreed by the Nutrition Team. If it is anticipated that PN may be required i.e at laparotomy with major small bowel resection, and central access is being placed, reserve a lumen of the central line for future PN use ONLY

Route of administration

In this hospital we do not administer PN peripherally due to the high incidence of complications. PN is delivered via a PICC line, a dedicated single lumen central line / central venous catheter (CVC) or unused, clean lumen of an existing CVC (Pittiruti, Hamilton, Biffi, MacFie, & Pertkiewicz, 2009) (National Institute for Health and Clinical Excellence, 2006). The tip of the CVC must lie in between the lower third of superior vena cava and upper third of right atrium to minimise the risk of thrombosis. If a PICC line is required for PN this will be organised by the Nutrition Team, once PN provision is agreed

Management of PN

PN must be administered using aseptic technique to reduce the risk of catheter related blood stream infection (CRBSI) (Ryder, 2006) (Boyce & Pittett, 2002). See Trust Parenteral Nutrition Policy.

Once connected, PN should not be disconnected and re-connected under any circumstances due to the risk of CRBSI. If disconnected, the PN bag and giving set must be disposed of and the volume infused recorded on the fluid chart and in the medical notes.

PN can only be administered on ICU, SDU, ward 309 or ward 305, due to the high risk nature of the infusion and specialist training required.

Prescription

The PN prescription will be developed by the Nutrition Team dietitian, pharmacist and consultant and signed by the consultant or other prescriber from the Nutrition Team. If there is no prescriber from the nutrition team available, the ward luminal gastroenterology consultant can sign the prescription.

Monitoring

Monitoring blood tests will be performed daily until stable and then twice per week. All blood tests required for monitoring of PN will be requested by the Nutrition Team. Additional blood tests should only be requested if required for other clinical reasons. The ward team are responsible for ensuring the necessary blood tests are taken. All blood tests should be taken

early in the morning as if no blood tests results are available by 12:30 it may not be possible to supply PN.

At weekends the ward doctors are responsible for acting on the blood results and correcting any electrolyte derangements. The current PN prescription will provide the electrolyte content of the bag,.

The patient will be seen daily Monday-Friday by the Nutrition Team with twice weekly Nutrition Consultant review.

Capillary blood glucose should be measured 1-2 times per day, or more if needed until stable during PN and off PN by ward staff to ensure there is adequate pancreatic endocrine function to manage the glucose load of the PN. More frequent CBG may be required if the patient is diabetic or exhibits impaired glucose tolerance. Frequency of monitoring may be reduced in stable patients as advised by the nutrition team

Observations, temperature, pulse, BP and respiratory rate to be measured every 6 hours at a minimum. An accurate fluid balance chart should be kept to include all oral and IV intake and all output including vomit, NG aspirates and free drainage, stoma, fistula, drain, urine and stool measurements.

Weekly weights should be taken, or more often if indicated, as advised by the nutrition team. Urine sodium will be requested by the Nutrition team, if needed for fluid/PN requirement.

Long-term PN

If PN has been required for 2 weeks, then the need for more long-term PN and potentially Home PN should be considered (Pironi, et al., 2015) This will be considered by the Nutrition Team.

Referral to East Midlands Intestinal Failure Service

Referral to East Midlands Intestinal Failure Service will be made in conjunction with the team responsible for the patient using the standard referral form and e-mailed to nuhnt.eastmidlandsifnetwork@nhs.net (Appendix 1). This will be completed and sent by the Nutrition Team

References

Boyce, J. M., & Pittett, D. (2002). HICPAC comittee and HIC/SHEA/APIC/IDSA hand hygiene Task Force: guideline for hand hygiene in health-care settings. *MMWR Recommendations and Reports*, 1-44.

National Institute for Health and Clinical Excellence. (2006). *Nutrition Support in Adults CG32.* London: NICE.

Pironi, L., Arends, J., Baxter, J., Bozzetti, F., Pelaez, R. B., Cuerda, C., et al. (2015). ESPEN endorsed recommendations. Definition and classificaion of intestinal failure in adults. *Clinical Nutrition*, 171-180.

Pittiruti, M., Hamilton, H., Biffi, R., MacFie, J., & Pertkiewicz, M. (2009). ESPEN Guidelines on Parenteral Nutrition: Central Venous Catheters (access, care, diagnosis and therapy of complications). *Clinical Nutrition*, 365-377.

Ryder, M. (2006). Evidence-based practice in the management of vascular access devises for home parenteral nutrition therapy. *Journal of Parenteral and Enteral Nutrition*, S82-93.

Documentation Controls

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Appendix 1
East Midlands Intestinal Failure Service Referral Form (see Koha link)