Variations in practice and clinical incidents relating to parenteral nutrition prompted staff at Buckinghamshire Healthcare NHS Trust to develop a new prescription chart and ward round pro forma

Development of a new parenteral nutrition chart to improve safety

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Parenteral nutrition is a specialist area, in which expertise and experience are required to prescribe safely. Moreover, it is important that trusts have protocols in place to facilitate the safe prescription and administration of these products. Despite this, there is substantial variation around how parenteral nutrition is prescribed.

At Buckinghamshire Healthcare NHS Trust (BHT) the nutrition support team has implemented a dedicated adult parenteral nutrition prescription chart along with a ward round pro forma to standardise practice across the trust and improve the safety of patients receiving these products.

Stimulus for change

In 2010, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report “A mixed bag” was published. Among the recommendations for adult patients was the use of a pro forma detailing:

- Indication for parenteral nutrition
- Treatment goals
- Risk of refeeding syndrome
- Weight and biochemical data
- Parenteral nutrition prescription

Historically, parental nutrition at BHT was prescribed on the intravenous fluid section of the trust prescription chart. This was inappropriate because fluid charts have inadequate space to prescribe clearly the individual components of a parenteral nutrition regimen (eg, total calorie and nitrogen content, fluid provided, electrolytes added, vitamins, trace elements and any other additions) or detail the type of bag, route or rate of administration.

The issues arising from the inadequate space on fluid charts for prescribing parenteral nutrition were evident from the enquiries received by the nutrition support team from ward-based nursing teams. Clinical incidents relating to parenteral nutrition had also been reported, examples of which are detailed below.

Incorrect rate A patient requiring parenteral nutrition was at a high risk of refeeding syndrome. Therefore, the nutrition support team recommended use of a low-calorie solution, in line with guidance from the National Institute for Health and Clinical Excellence. The prescription indicated that a portion of the bag was to be infused over 24 hours. However, a member of nursing staff set the rate for the whole bag to be infused over this period; fortunately the error was discovered before administration. A contributing factor could have been unclear documentation of the rate on the prescription.

Incorrect route Incidents in which parenteral nutrition intended for central intravenous administration was given peripherally have occurred within BHT.

Poor prescribing There have been incidents in which patients on the intensive care unit were only prescribed enough parenteral nutrition to last 24 hours. On some occasions this meant that over the weekends — when there were no doctors available who were skilled to prescribe such products — parenteral nutrition had to be continued despite the lack of valid prescription.

Parenteral nutrition prescriptions are often signed by doctors who have not been involved in the decision to start the therapy. This is generally considered poor practice because, in some cases, the prescriber is not familiar with the components of the nutrition.

Working together

The cross-site nutrition support team at BHT consists of a consultant gastroenterologist, three specialist clinical pharmacists, two senior dietitians and a specialist nurse. The
team worked closely with senior intensive care nurses, and colleagues from anaesthetics, pharmacy aseptic services, endocrinology, microbiology and infection control, to design a dedicated parenteral nutrition prescription chart.

The team wanted the chart to serve for more than just the prescription of parenteral nutrition, but also to be a bedside guide detailing fundamental information relating to prescribing and administration. It was agreed that, in addition to a clear prescription area, key information that should be included was:

- The process for referring patients to the nutrition support team
- How to manage a feeding line
- Standard parenteral nutrition regimens used at BHT
- Biochemical and clinical monitoring
- How to identify catheter-related sepsis

Involvement of the various specialists listed above was essential to ensure that the information within the chart was accurate; for example, advice was sought from microbiology around the management of catheter-related sepsis and from endocrinology for appropriate monitoring of blood sugar levels.

The team also agreed that an accompanying parenteral nutrition pro forma would need to be developed in line with the NCEPOD recommendations. The pro forma would be designed for use by the multidisciplinary team and form part of a patient’s clinical notes. It would serve to ensure that adequate review and monitoring occurred for all patients receiving parenteral nutrition, and that this was clearly documented in the clinical notes.

For each patient, the pro forma is completed by the nutrition support team on weekly consultant-led ward rounds. It includes the indication for parenteral nutrition, patient weight and body mass index, the type of intravenous line in use and the duration over which it has been used, clinical observations, biochemical data and a therapeutic management plan.

**The result**

The BHT parenteral nutrition chart consists of four sections. The first page of the chart (see Figure 1) gives prescribers and nursing staff basic guidance on parenteral nutrition, including:

- How to refer patients for parenteral nutrition
- The need to administer parenteral nutrition via a dedicated intravenous line, including the need to ensure that lines are labelled appropriately
- The importance of strict aseptic technique when handling parenteral nutrition bags and intravenous lines
- General points about fluid management
- Advice around refeeding syndrome

Parenteral nutrition is prescribed on the second page of the chart (Figure 2, p.271). The prescription includes: route of administration; components of the parenteral nutrition; rate of administration; and total volume to be infused over 24 hours. Importantly, the way that the components of the parenteral nutrition are listed on the chart correlates with the label on the bag (attached by the aseptic services unit during compounding). This means that the person administering the bag can perform accuracy checks easily.

To cover the instances where there is not a prescriber on the nutrition support team ward round, the parenteral nutrition prescription has two signature boxes — one for the member of the nutrition support team who authorises the order and the second for the signature of a prescriber.

**Figure 1: General information about parenteral nutrition is outlined on the new chart**
Roll-out

The nutrition support team conducted a series of teaching sessions with all staff involved in administering and prescribing parenteral nutrition at BHT. This was carried out over several weeks, across both acute sites of the trust, and consisted of ward and non-ward based teaching. Once all nursing staff on a unit received training the chart was then formally launched.

Improved patient safety

Over the past two years this new prescription chart has had a positive impact on the management of patients receiving parenteral nutrition; there have been a reduced number of parenteral nutrition-associated incidents, particularly those relating to administration errors. Roll-out of the new chart and pro forma has also improved the profile of the nutrition team, and boosted education around parenteral nutrition for nursing staff and non-specialist doctors.

In the future we plan to continue to monitor patient outcomes and standards of care around parenteral nutrition to help the trust provide the best possible care for this group of patients.

ACKNOWLEDGEMENT Thanks to Sue Cullen, consultant gastroenterologist, Heike Melbourne, senior dietitian, Bernadette Allsopp, senior dietitian, Catherine Northey, lead pharmacist for medicines for older people, Satinder Bhandal, senior pharmacist, and Liz Evans, nutrition nurse specialist, all at Buckinghamshire Healthcare NHS Trust.

References
