Managing high-output stomas

Rebecca Slater

The management of patients with high output stomas and complex enterocutaneous fistula can be challenging. They require a lot of ongoing support including appliance changes, nutritional support and advice and psychosocial support. Due to the nature of this subject and the complexity of this group of patients it was decided that an informative education programme made up of three informative modules would be published for nurses working within the field of stoma care and on colorectal surgical wards to help them develop insight and understanding of both the nutritional management and the nursing management of appliance changes to aid the nursing care they deliver to their patients (Kenyon and Peckover, 2008).

Building placement capacity can also be challenging when community-based staff and mentors are already overstretched, juggling commitments to patients, students and newly qualified staff (Drennan et al, 2004). As community-based care has developed, some hospital placement capacity has been lost owing to the re-organisation of services (Department of Health, 2009). A base/main placement on a ward may now no longer offer a sufficiently broad range of learning opportunities and students may have to seek alternative experience away from the ward/base placement.

It is with this background and these considerations in mind that the study reported here was devised. The study was set out to explore the thoughts and feelings of a variety of professionals (link lecturers, learning environment managers and mentors) working and operating within the current system of placement pathways. From this it was hoped to gain some insights into future placement considerations that could inform faculty planning.

Module 1
Module 1 was initially made up of a presentation given by a gastroenterologist with a speciality within nutrition and the management of patients with intestinal failure and a colorectal and stoma nurse specialist working with patients with intestinal failure as a result of high-output stomas and enterocutaneous fistula. The presentations addressed the physiology of the gastrointestinal system with key features around absorption, nutritional requirements, reasons for patients becoming dehydrated and considerations of this patient group. The detailed medical management was underpinned by the nursing considerations of high output stomas and enterocutaneous fistula along with the medication routinely used to aid reduction and absorption of nutrients and electrolytes and the presentation of two case studies to graphically highlight the process of product choice and appliance change.

A detailed workbook was handed out to those that attended the presentations at WCET. The aim of the workbook was to allow attendees to write notes and to provide them with detailed information relating to the presentations and further reading for accessing evidence-based material relating to this topic. The workbook can be requested by those wanting to complete the three modules even if they have not attended WCET. On completion of the workbook for all three modules, CPD points are awarded, which count towards the Nursing and Midwifery Council (NMC) requirement for ongoing postgraduate education.

Module 1 consists of:
- The physiology of the intestinal tract
- Release and absorption of digestive enzymes
- The normal absorption of electrolytes and nutrition
- The cause of dehydration and electrolyte imbalance in patients with high outputs
- Considerations of the patient with a high output in the management of nutrition and electrolyte replacement
- Product choice when managing a high-output stoma and enterocutaneous fistula
- The presentation of two case studies to amplify the practicalities of difficult stoma and fistula management and the products that are regularly used.
Table 1. Key physiological differences between the jejunum and the ileum

<table>
<thead>
<tr>
<th>Jejunum</th>
<th>Ileum</th>
</tr>
</thead>
<tbody>
<tr>
<td>More permeable to water, Na &amp; Chloride</td>
<td>Less permeable to water, Na &amp; Chloride</td>
</tr>
<tr>
<td>Na absorption:</td>
<td>Na absorption:</td>
</tr>
<tr>
<td>Can only occur across a small conc gradient</td>
<td>Can occur across a large conc gradient</td>
</tr>
<tr>
<td>Is dependent on water movement</td>
<td>Is NOT dependent on water movement</td>
</tr>
<tr>
<td>Is coupled to glucose and amino-acid absorption</td>
<td>Is NOT coupled to glucose and amino-acid absorption</td>
</tr>
<tr>
<td>Maximal Na absorption occurs when the luminal Na conc is 120mmol/l</td>
<td></td>
</tr>
</tbody>
</table>

Normal physiology of the jejunum and ileum
The jejunum is the proximal 2/5 of the small bowel. Its diameter is about 4 cm. Compared to the ileum, the jejunum has longer villi, a higher villus density (40/mm²) and many circular folds. It is also thicker, more muscular and more vascular and contains fewer lymphatics.

The ileum is the distal 3/5 of the small bowel. It is about 3.5 cm in diameter and has smaller villi, a lower villus density (20/mm²) and fewer circular folds. It is thinner and less muscular and has many lymphoid follicles. See Table 1.

Module 2
Module 2 sets out to explore intermediate level education. The aim is that those completing the study programme would have gained sufficient knowledge at entry level in module 1 to enable them to explore the subject of intestinal failure further. The entry level material provided in module 1 explores the day-to-day management of high outputs in preparation for the understanding that will be gained in module 2. It is important to highlight that all three modules are easy to follow and set at a level that will be interesting and offer opportunities to explore this complex subject further as a result.

Absorption of key nutrients and minerals in the bowel

A workbook is available for each module with detailed subject material providing further reading to enhance personal knowledge. Module 2 explores high outputs in relation to intravenous support, long-term absorption of the small intestine and intravenous access but within the patient group that will go on to require intervention permanently to sustain life. The surgical considerations of this patient group are explained to enhance the knowledge of the participants working within colorectal surgical settings, those who have involvement with patients who have undergone surgery for intestinal failure, and those who are involved in the long-term management of patients who have reached the end of their surgical pathway.

This module provides educational material on the following subjects:
- Biochemistry of the patient with a chronic high-output stoma/enterocutaneous fistula
- The long-term use of intravenous nutrition
- The long-term efficacy of intestinal and intravenous absorption
- Small bowel adaptation
- Complications of the liver associated with long-term use of intravenous nutrition and intravenous access
- Surgical considerations of patients with high-output stomas and enterocutaneous fistula
- Nursing implications associated with the management of patients undergoing restoration of intestinal continuity
- Siting of patients undergoing repair of enterocutaneous fistula
- Product choice in terms of the long-term management of high-output stomas and enterocutaneous fistula that cannot undergo surgical repair.

Within module 2 the long-term success of restoration of intestinal continuity is explored and evidence from surgical case studies is provided to enhance the understanding of this subject. A common problem associated with restoration of intestinal continuity is the control of the urge to defecate and the ability to hold flatus. This is not a subject that is widely discussed or taught and will provide valuable information that can be transferred within clinical practice.
Module 3
The final module is set at an advanced level of understanding. With all of the vast and interesting material given in modules 1 and 2 the participants of this education programme will enjoy taking their knowledge further and exploring this specialist subject further.

Bowel transplantation and the long-term management of this patient group are rarely seen in hospitals across the country. Specialist centres manage this patient group day to day. Therefore, the aim of module 3 is to offer readers a source of education that does not take them away from their clinical workload to attain knowledge and understanding of this, again, complex and fascinating area.

Module 3 addresses the subject of bowel transplantation and the criteria for those that may be a candidate for a bowel transplant. Bowel transplantation has been performed for a number of years now but there is still little awareness of the surgical management of intestinal failure so a detailed presentation of this subject will be produced on paper. Important details such as complications associated with bowel transplantation and multi-organ transplantation will be explained. The module will also go on to consider the following areas:
- Current and future research within the field of intestinal failure
- Surgical and long-term care of patients following bowel transplantation
- Managing oral nutrition
- Lifestyle choices.

Two case studies relating to nurses managing patients that have undergone bowel transplantation will also be presented.

Summary
This is an exciting three-part education supplement that explores this complex subject in detail but allows the participant to understand the material content with interest, in their own time, at their own pace.

Education is vital for nurses to ensure that care is delivered to a high standard and that it is evidence-based but with the pressures on clinical roles and workload it is hard to undertake study days if this requires time spent away from work. The opportunity to gain understanding and a comparison of practices by undertaking 'distant' learning is ideal.

In order to undertake the programme and obtain the CPD points available, individuals must apply for the initial workbook and then complete each of the modules published within this journal. The modules are not taxing and completion of the workbook can be eased by the provision of references for further reading and the in-depth education material published in each module.

Conflict of interest: This article was sponsored by Convatec

The first module will be featured in the next Stoma Supplement of BJN in March 2013. To complete this module, contact Convatec on 0800282 254 (UK) 1800 721 721 (ROI) or email us on stoma.webcare@convatec.com to get the module workbook. Your CPD certificate will be sent to you directly.