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Peri-operative management in urinary diversion surgery: A time for change?

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ABSTRACT

Introduction: Bowel preparation was established as part of the pre-operative course for patients undergoing ileal conduit formation since the late 1970's. Rationales for its use include reduction in infection and wound complications, technically easier anastomosis and earlier return to bowel function. However, recent reports have challenged this practice. Traditionally antibiotics were also administered for several days prior to surgery with the assumption that bacterial load was reduced. Modification of antibiotic protocols resulted from evidence-based findings. Furthermore, publications emphasizing the benefit of Enhanced Recovery Protocols/Programmes (ERP) have become contemporary.

Methods: An online multiple-choice questionnaire (via Monkey Survey®) was administered to all consultant urologists in Ireland. This national cross-sectional study evaluated the use of bowel preparation and antibiotic prophylaxis prior to urinary diversion. In addition, we also assessed consultant urologists' awareness of ERP and their views on the introduction and implementation of such a national program.

Results: Of the 41 consultant urologists surveyed, 80.4% ($n = 33$) responded. 63.6% routinely used bowel preparation. Klean Prep® was the most commonly used bowel preparation. 80.9% of urologists admit their patient's one-day pre-operatively for bowel preparation, with 87.8% using antibiotic prophylaxis at anesthesia induction, and 18.1% continuing the antibiotics for 24–48 h post-operatively. Although 74% of consultants are aware of ERP, only 66.6% are in favor of their national implementation.

Conclusion: The majority of Irish urologists use bowel preparation prior to ileal conduit formation. Substantial recent evidence has emerged showing no difference in infective complications or anastomotic leakage when bowel preparation was not used. National guidelines would be beneficial regarding the use of bowel preparation, antibiotic prophylaxis and ERP for urinary diversion surgery.

Introduction

Urinary diversion surgery is performed for a variety of reasons, both benign and malignant. Most commonly the small bowel (ileum) is utilized, due to concerns over late development of squamous cell carcinoma with diversion into large bowel (Sigmoid).[1] The ileal conduit was established in the 1950's[2] and is a robust form of urinary diversion. Recently,

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creation of a neobladder from ileum has been utilized in select patients allowing for orthotopic bladder replacement.[3]

Bowel preparation has been a routine part of the pre-operative regimen for patients undergoing urinary diversion surgery.[4,5] This practice was established in the late 1970's by Freiha[6] and subsequently recommended by most urological textbooks since then. The rationale for the use of bowel preparation was to reduce the bacterial load secondary to faecal matter in the small bowel, therefore lowering the risk of contamination and complications.[7–10]

Numerous bowel preparation regimens have been utilized. Most common bowel preparation regimens consist of mechanical clearing agents such as polyethelene glycol, sodium picosulfate or magnesium citrate in combination with clear liquid diet, low residue diet or fasting[7] and many are admitted pre-operatively to administer these protocols.

Results from recent studies on bowel preparation have questioned this traditional practice. Colorectal studies have demonstrated that not only is there no increase incidence of post-operative complications but an improvement in bowel function leading to earlier discharge in patients who have not had pre-operative bowel preparation has been observed.[5,9,11] Emerging urological studies also support this finding.[7,12,13]

Due to variations in practice there is no uniformity or international guidelines on the usage of bowel preparation in urinary diversion. Furthermore, the introduction of national enhanced recovery protocols (ERP)[14] standardizing early ambulation and the timing of post-operative feeding remains controversial. This study aims to provide a consensus on the current practices of urological surgeons in Ireland and their preference on the development and introduction of the national ERP.

Methods

A national cross-sectional study was carried out to evaluate the use of bowel preparation and antibiotic prophylaxis prior to urinary diversion. An online multiple-choice questionnaire (via Monkey Survey®) was administered to all consultant urologists in Ireland, exploring the type of and reason for their use of bowel preparation, preference regarding dietary modification, hospital admission policy for bowel preparation administration prior to surgery. In addition the preference of antibiotic prophylaxis prior to surgery was assessed. Due to the anonymous nature of the survey, participants' demographics such as age, gender, and regional variation were not assessed. A follow-up reminder email was sent two weeks later. Consultant urologists were identified from the Irish Society of Urologists members list.

In addition, we assessed the Urologists' awareness of the Enhanced Recovery Programs (ERP) and their views on the introduction and national implementation of such programs.

Using the National Cancer Registry of Ireland, we evaluated the volume and frequency of radical cystectomy in the last 10 years to estimate the cost incurred by the Irish Health Service from the use of bowel prep in the pre-operative setting.

All data were collected in a specific database and analyzed by the one of the authors. Analysis was carried out using Microsoft® Excel software.

Results

41 consultant urologists were identified, with 80.4% ($n = 33$) response rate for the study. Out of the participants, 18.1% ($n = 6$) were excluded because urinary diversion surgery was not routinely performed in their practice. Of the remaining participants, 63.6% ($n = 21$) routinely used bowel preparation and 36.4% ($n = 6$) do not use bowel preparation (See Fig. 1).

Klean Prep® was most commonly prescribed (52.4%, $n = 11$) followed by Phosphate Enema (23.8%, $n = 5$) and Picolax® (23.8%, $n = 5$). 25% take clear fluids only, 65% have light diet (tea/coffee + toast) and 10% have normal diet. 80.9% of urologists ($n = 17$) admit their patients one-day pre-operatively for bowel preparation.

On appraisal of reasons for the use of bowel preparation pre-operatively, 52.9% were concerned with faecal contamination intra-operatively, 41.1% thought that bowel preparation decreased the risk of wound and intra-abdominal infections, 35.3% continued this practice due the training influences and traditional practices, while 23.5% believed that bowel preparation resulted in earlier return to normal intestinal function and 14.2% had alternative reason (See Fig. 2).

87.8% ($n = 29$) of consultant urologists report using prophylactic antibiotics at anesthesia induction, with 18.1% ($n = 6$) continuing the antibiotics for 24–48 h post-operatively. Co-Amoxiclav was the most frequently used antibiotic at induction. However, it typically was combined with another antibiotic agent. The most common combination was Co-Amoxiclav with Gentamicin (41.4%) (See Fig. 3 for antibiotic combinations).

Although 74% of consultants are aware of Enhanced Recovery Programs only 66.6% are in favor of their implementation. Currently in Ireland, no center formally implements these ERPs for urinary diversion surgery.

Discussion

This national cross-sectional study examined the current pre-operative management of patients in anticipation of ileal

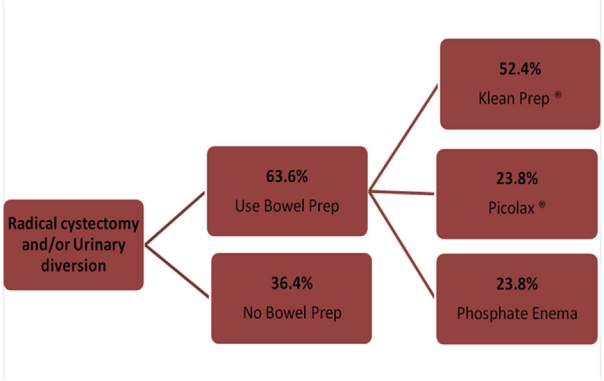

Fig. 1 – Breakdown of Bowel preparation use & type of preparation.