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Early removal of urinary catheters following laparoscopic hysterectomy for endometrial carcinoma

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Abstract

Aim

Total laparoscopic hysterectomy is a common oncological procedure and enhanced recovery after surgery programmes suggest early postoperative removal of urinary catheters. This quality improvement project aimed to reduce the duration of urinary catheters following laparoscopic hysterectomy for endometrial carcinoma.

Methods

A process improvement plan was developed to facilitate the removal of urinary catheters at midnight following surgery. A convenience sample of twelve cases pre- intervention and nine cases post-intervention were reviewed.

Results

Twelve cases were analysed in the baseline audit and there were nine cases in the post-intervention group. Baseline data showed that catheters were removed between 6am and 6pm, while following our intervention, 88% (8/9) catheters were removed at midnight, with the remaining catheter removed at 2am. Median length of stay was unchanged at two days, though one woman in the post-intervention group went home within 24 hours of surgery. No women had urinary retention.

Discussion

Earlier removal of in-dwelling urinary catheters is a cost-neutral quality improvement intervention that may reduce the length of stay following laparoscopic hysterectomy. Urinary retention does not appear to be increased.

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Introduction

Total laparoscopic hysterectomy (TLH) remains the gold standard treatment for early-stage endometrial carcinoma[1]. Enhanced recovery after surgery (ERAS) aims to attenuate the surgical stress response and improve patient outcomes[2,3] with *"early removal of drains, lines, and urinary catheters"* suggested as optimal postoperative care[3]. This quality improvement project aimed to reduce the duration of in-dwelling urinary catheters (IDCs) following TLH for endometrial carcinoma.

Methods

The project was based on a gynaecological ward in University Hospital Galway. An IDC is inserted at the beginning of any TLH and is traditionally removed the morning following surgery. We hypothesised that removing IDCs at midnight would give women a full bladder by early morning, promoting earlier micturition and mobilisation, and thus discharge home.

Baseline data were obtained by retrospective audit of the most recent twelve cases—chosen as these records were on-site and did not require more costly retrieval. Data regarding the recommended time of catheter removal, actual time of removal, urinary retention, and length of stay were extracted. Data extracted for reaudit were identical.

Three primary drivers were identified: Staff Capacity, Staff Awareness, and Communication, see Figure 1. Initial discussions with the nursing staff suggested that midnight removal of IDCs would not affect staffing capacity. Staff awareness was addressed using a short tutorial during the dedicated nursing handover and was reinforced on ward rounds. Finally, surgeon-to-staff communication was altered by mandating that the operating surgeon specify a specific time for IDC removal.

This quality improvement project was approved by the hospital audit committee (ref: GUH/281)

Results

Baseline measurement

Twelve cases were analysed in the baseline audit. A time for IDC removal was recorded in three cases (25%). One surgeon specified "until mobilising". In the baseline audit, the timing of catheter removal varied from 6am to 6pm. Removal time was not recorded in two cases. There were no episodes of urinary retention. The median length of stay was 2 days (range 2 – 4).

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Follow-up measurement

Nine women were in our post-intervention group. Midnight was specified as the removal time in all cases. The first catheter in the post-intervention group was removed at 2am. A 'plan-do-study-act' (PDSA) cycle was enacted after this case, where further nursing education was implemented. All cases following this PDSA cycle were removed at midnight. There were no cases of urinary retention. The median length of stay in the follow-up group was unchanged at 2 days (range 1 – 3), though one woman went home within 24 hours of surgery."

Discussion

This quality improvement project has shown that early removal of urinary catheters following TLH for endometrial carcinoma is an achievable and cost-neutral intervention that does not appear to increase rates of urinary complications and may promote early discharge.

Previous research has shown mixed results with earlier removal of urinary catheters, with two large RCTs demonstrating that immediate postoperative removal was not superior to delayed (18 – 24 hours) removal in terms of urinary retention in both benign TLH(4) and non-hysterectomy laparoscopy[5]. Prior work in Ireland showed that early removal (<12 hours) did not increase rates of urinary retention following TLH[6], suggesting that there may be a difference in voiding function between immediate removal and removal after a short number of hours.

ERAS provides several definitive benefits to patients and staff in terms of morbidity and length of stay[3] and success in smaller areas such as these could be used to foster 'buy-in' from stakeholders and may allow for more complex interventions to be employed at a later point.

While this was a comprehensive quality improvement project where we had complete pre- and post-intervention data as well as the use of a PDSA cycle, it remains a smaller project in a single unit. Larger studies are needed to confirm the results. Larger studies are needed to confirm the results, though given the caseload in our specific institution, such an undertaking would need to involve several units. Despite this limitation, the present analysis suggests that earlier catheter removal is a simple, effective, and most importantly, patient-centered quality improvement initiative and the success described herein may aid with stakeholder buy-in in other units.

Earlier removal of IDCs is a cost- and resource-neutral quality improvement intervention that may reduce the length of stay following TLH. Urinary retention does not appear to be increased, though larger studies are needed to confirm this.

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Declarations of Conflicts of Interest:

None declared.

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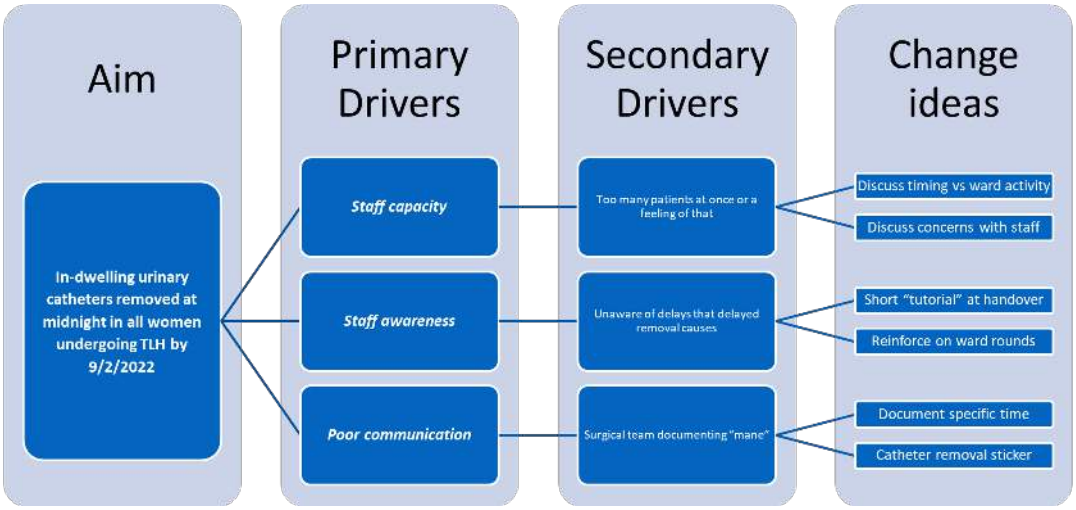

Figure(s)

Figure 1: Quality improvement intervention driver diagram