A Physician Assistant-led randomized controlled trial (RCT) to improve outcomes following Breast Cancer Surgery using a Jackson Pratt (JP) drain milking device

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Introduction

Breast cancer patients undergoing mastectomy or axillary lymph node dissection (ALND) are routinely discharged home with a Jackson Pratt (JP) drain left in to reduce the risk of developing a seroma. Common drain-related complications after surgery include leaking around drain, clogged drain tubing, pain, bleeding and infection. It is our clinical impression that the management of these drains at home is difficult for patients, requiring multiple community nursing visits and often leads to unplanned healthcare visits to family doctor or the surgeon’s office.

Objective

A pilot RCT to track the patient experience with JP-drain care at home and to evaluate the effectiveness of “Tube Evac,” a JP-drain milking device, in reducing drain-related complications and unscheduled healthcare visits following Breast Surgery.

Method

Recruitment and Follow up

- All elective breast surgery patients at a tertiary care, academic hospital, meeting the inclusion criteria were randomly assigned to the “Tube Evac” group (intervention arm) or standard care group (control arm).
- Inclusion criteria: (i) patients >18 years, (ii) undergoing mastectomy and/or ALND (iii) understood English
- For this pilot study, 100 consecutive patients were selected.

Patients in the control group received standard drain care and post-operative discharge instructions. Patients in the intervention group were provided a ”Tube-Evac,” JP drain milking device. Physician Assistants (PAs) demonstrated to patients how to use the device and provided an education handout.

All patients were asked to complete a log sheet to track community nursing visits and drain-related complications. The PAs called all patients post-discharge day 7 to complete a telephone survey and to collect outcome data.

Results

The interim results are presented for 58 patients (29 intervention, 29 control).

Figure 2: Post-mastectomy JP drain and manual drain milking

Figure 3: JP drain milking using the Tube-Evac device

The two groups were similar in terms of demographics.

Table 1: Demographics

- Patients in the intervention group received standard drain care and post-operative discharge instructions.
- In addition to standard care, patients in the intervention group were provided a Tube Evac, JP drain milking device. Physician Assistants (PAs) demonstrated to patients how to use the device and provided an education handout.
- All patients were asked to complete a log sheet to track community nursing visits and drain-related complications. The PAs called all patients post-discharge day 7 to complete a telephone survey and to collect outcome data.

Figure 1: Study outcomes

Figure 4: JP drain-related complications

Figure 5: Patient experience using the Tube-Evac in the intervention group (n=27)

Discussion

More patients complained of clogged drain tubing in the control group as compared to the intervention arm (21% vs 6% vs 4% vs 2%).

Table 2: Primary outcomes

- Patients in the intervention group had their drain(s) removed sooner and felt more comfortable managing their drains at home compared to the control group.
- Patients using the Tube-Evac drain milking device had their drains removed sooner and felt more comfortable managing their drains at home compared to the control group.
- The Tube-Evac device was viewed positively by patients due to high rates of satisfaction. It was recommended by all patients in the intervention arm.

Conclusion

- Breast surgery patients experience difficulties managing JP drains postoperatively resulting in drain-related complications prompting visits to family doctor or the surgeon’s office.
- Preliminary results suggest that the “Tube Evac” is a successful strategy to decrease drain-related complications and unplanned postoperative healthcare visits, while improving patient confidence with managing their surgical drains (at home)
- Tube-Evac is likely a feasible means to having JP drains removed sooner in breast surgery patients.
- Upon completion of the pilot study, our next step is to directly track patient anxiety associated with breast JP drain care in a larger sample size.

Table 3: Secondary outcomes

- Patients in the intervention group had their drain(s) removed sooner and felt more comfortable managing their drains at home compared to the control group.
- Patients using the Tube-Evac drain milking device had their drains removed sooner and felt more comfortable managing their drains at home compared to the control group.
- The Tube-Evac device was viewed positively by patients due to high rates of satisfaction. It was recommended by all patients in the intervention arm.

Table 4: Secondary outcomes

- Patients in the intervention group had their drain(s) removed sooner and felt more comfortable managing their drains at home compared to the control group.
- Patients using the Tube-Evac drain milking device had their drains removed sooner and felt more comfortable managing their drains at home compared to the control group.
- The Tube-Evac device was viewed positively by patients due to high rates of satisfaction. It was recommended by all patients in the intervention arm.

Figure 6: Patient quotes illustrating patient satisfaction with Tube-Evac