

CLINICAL SUMMARY

Reduced Length of Hospitalization in Primary Total Knee Arthroplasty Patients Using an Updated Enhanced Recovery After Orthopedic Surgery (ERAS) Pathway

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SETTING: Virginia Mason Medical Center, Seattle, Washington

BACKGROUND

This study evaluated if updates to an existing orthopedic enhanced recovery after surgery (ERAS) pathway would improve length of hospitalization.

METHODS

- After approval from the internal review board, all patients who had undergone primary TKA were retrospectively identified over a period from January 2012 to July 2013.
- Two groups of patients were included in the study:
 - o patients who had undergone surgery with a standardized care pathway that included femoral nerve block and
 - o those who had undergone surgery with the updated ERAS pathway (see below)
- Opioid dependence prior to surgery (>30 mg morphine equivalents daily) excluded from analysis

Enhanced Recovery After Orthopedic Surgery Pathway (ERAS).

PRE-UPDATED PATHWAY	POST-UPDATED PATHWAY
Surgery Clinic	
Optional TKA education class	Required TKA education class
No specific care companion ^a	Specific identified care companion ^a
Preoperative	
Oral multimodal analgesia ^b	Oral multimodal analgesia ^b
No preemptive anti-emetics	Scopolamine patch
Long acting ^c spinal (preferred) or general anesthetic	Short acting ^c spinal (preferred) or general anesthetic
Intraoperative	
No standardized steroids	Intravenous dexamethasone
No standardization of IV fluids	2 L of Lactated Ringer's
No anti-fibrinolytics	Tranexamic acid
Postoperative	
Intermittent femoral nerve block (paused prior to physical therapy)	Continuous adductor canal block for 48 hours
Physical therapy beginning on postoperative day 1	Physical therapy session on day of surgery
No standardization of analgesics	Scheduled acetaminophen NSAIDs, gabapentin, Oxycodone pm

a Care companion = pre-identified caregiver that attests to availability upon discharge of patient.

b Celebrex, gabapentin, acetaminophen.

c Long acting spinal = bupivacaine; short acting spinal = mepivacaine.

RESULTS

- Two hundred and fifty two subjects total were retrospectively analyzed before and after the implementation of the updated ERAS pathway.
- Primary outcome of this investigation was hospital LOS.
- Median LOS was 76.6 hours in the pre-pathway cohort compared to 56.1 hours in the post-pathway cohort (p=0.002)
- By the end of POD 2, 40% of the post-pathway cohort remained in the hospital compared to 87% of the pre-pathway cohort. (p=0.001)
- Secondary functional outcomes were significantly improved
- Decreased need for transfusion (p=0.007)
- Decreased nausea (p=0.029)
- Increased ambulation distance POD 1-2 (p<0.006)
- Discharged to home (27% versus 52%) (p=0.002)
- 30 day readmission rate 3% post pathway versus 7%
- Falls 0% post pathway versus 2%.

CONCLUSION

Significant reduction in LOS after updating an existing orthopedic enhanced recovery pathway by focusing on evidence-based changes. The reduction in LOS was accompanied by a multi-faceted improvement in post-surgical recovery and not associated with an increase in readmissions. Execution of the updated standard pathway was made possible through clinician-led, integrated partnerships.

KEY POINTS

- Enhanced Recovery after Orthopedic Surgery (ERAS) pathway including ACNB offers the potential for valuable gains in patient outcomes across the spectrum of care.
- Innovations in the perioperative care of TKAs can result in clinically meaningful decreases in post-operative length of stay without increasing readmission rates
- Partnerships among orthopedic surgery, anesthesiology, nursing, PT/OT, and administration that we were able to optimize the full potential of the ACNB to improve discharge times