

Enhanced recovery after surgery for patients undergoing nephrectomy

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INTRODUCTION: Enhanced Recovery After Surgery (ERAS) pathways are multidisciplinary, multimodal approaches to perioperative care that aim to improve patient outcomes and decrease length of inpatient hospital stay after a procedure. ERAS pathways were initially pioneered in the setting of colorectal surgery and the success of pathway implementation is well-supported in the literature. Efforts are ongoing to expand the ERAS pathway to other surgical subspecialties. The body of research exploring the utility and efficacy of ERAS for complex urological procedures is limited. This study evaluates the outcomes of the implementation-enhanced recovery after surgery (ERAS) in patients undergoing a nephrectomy.

METHODS: After adapting guidelines to the needs of a mid-sized academic center, a multidisciplinary team of physicians, nurses, and staff were educated about the ERAS pathway and goals of care. Cases included were laparoscopic and open simple nephrectomy, radical nephrectomy and partial nephrectomies. Surgeons completing these cases were encouraged to place patients in the pathway by booking the patient for surgery with ERAS. The components of the pathway include pre-operative patient education, perioperative nutritional support, perioperative nerve blocks, multimodal pain management, and early post-operative ambulation. The primary outcome measured was median length of hospital stay (LOS) with secondary outcomes of total hospital cost and increased patient satisfaction. Adjustments to the pathway specific to nephrectomy cases include specific premedication instructions and clear guidelines for bed rest for partial nephrectomies and early ambulation for radical nephrectomies due to their lesser risk of bleeding.

DISCUSSION: A total of twenty-four surgeries at Albany Medical Center underwent the Enhanced Recovery After Nephrectomy pathway and were analyzed. From July 2017 to October 2017, patients going through the Enhanced Recovery After Nephrectomy pathway had an overall decreased median LOS. Prior to intervention, 113 patients undergoing a nephrectomy at Albany Medical Center had a median LOS of 3.51 days. There was also a significant reduction in total hospital costs per patient between the pre-state and post-state interventions. Our experience from implementation of an enhanced recovery pathway for colorectal surgery demonstrated that ERAS was an effective strategy to reduce LOS, total hospital costs, and increase patient satisfaction. By continuing our analysis and further investigation into ERAS for nephrectomy, we hope to duplicate these results and provide further evidence for expansion of ERAS to other surgical subspecialties.

Mean	Pre-State - All Cases 2016	July 2017	Aug 2017	Sept 2017	Oct 2017	July-Oct 2017
LOS	5.63	2.56	2.82	2.11	4.78	3.05
LOS (Median)	3.51	2.38	2.42	1.42	2.54	2.33
Direct Cost	13,461	8,359	9,420	11,023	11,289	9,560
Indirect Cost	9,918	6,489	7,269	7,690	9,218	7,344
Total Cost	23,379	14,848	16,689	18,713	20,507	16,904
# of Cases	113	6	7	5	6	24
30-Day Readmission Rate	9.7%					