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Original Research Article

Enhanced Recovery After Surgery (ERAS) Protocol in Urology and General Surgery: A Comparative Study

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Abstract: ***Background:*** Enhanced Recovery After Surgery (ERAS) protocols are evidence-based perioperative care pathways designed to reduce surgical stress, improve postoperative recovery, and shorten hospital stay. These protocols integrate preoperative counseling, optimized anesthesia, multimodal analgesia, early feeding, and early mobilization. ERAS has been increasingly applied in both urology and general surgery, with reported benefits in reducing postoperative complications and improving patient outcomes. ***Objectives:*** To compare postoperative outcomes of patients managed under ERAS protocols in urology and general surgery and to determine differences in complication rates, length of hospital stay, time to mobilization, time to oral intake, and readmission rates. ***Methodology:*** This comparative cross-sectional study was conducted in the Departments of Urology Northwest General Hospital and Research Center Peshawar from jan 2024 to june 2024. A total of 120 patients managed under ERAS protocols were included, with 60 patients in the urology group and 60 patients in the general surgery group. Demographic characteristics, diagnosis, type of surgery, ERAS compliance measures, postoperative complications, time to ambulation, time to oral intake, and hospital stay were recorded using a structured data collection form. Data were analyzed using SPSS version 24. Mean and standard deviation were calculated for quantitative variables, while categorical variables were presented as frequencies and percentages. Statistical significance was set at $p < 0.05$. ***Results:*** A total of 120 patients were included in the study. The mean age of the study population was 46.8 ± 13.7 years, with males constituting the majority of cases. Patients in the urology ERAS group demonstrated earlier oral intake and mobilization compared with the general surgery ERAS group. Postoperative complications were observed less frequently in the urology group than in the general surgery group. The mean hospital stay was shorter among urology patients compared with general surgery patients. Better compliance with ERAS components was associated with improved recovery outcomes, reduced postoperative morbidity, and earlier discharge. ***Conclusion***: ERAS protocols are associated with improved postoperative recovery in both urology and general surgery. Early mobilization, reduced hospital stay, earlier return to oral intake, and lower complication rates were observed among patients managed with ERAS measures. Wider implementation of ERAS pathways and improved compliance with protocol components may further enhance surgical outcomes in tertiary care hospitals.

Keywords: ERAS; Urology; General surgery; Postoperative outcomes; Hospital stay; Comparative study.

INTRODUCTION

Enhanced Recovery After Surgery (ERAS) is a multimodal perioperative care approach designed to reduce the physiological stress response to surgery and accelerate postoperative recovery (1). Initially developed for colorectal surgery, ERAS protocols are

now widely applied across multiple surgical specialties, including urology and general surgery (2). These protocols combine evidence-based interventions in the preoperative, intraoperative, and postoperative periods to improve outcomes and reduce complications (3).The main components of ERAS include patient counseling, shortened fasting, carbohydrate loading, multimodal analgesia, avoidance of unnecessary drains and tubes, goal-directed fluid therapy, early oral feeding, and early mobilization (4). Together, these interventions contribute to reduced insulin resistance, better pain control, faster return of bowel function, and shorter hospital stay (5).In general surgery, ERAS protocols have shown favorable outcomes in procedures such as colorectal surgery, cholecystectomy, appendectomy, and other abdominal operations (6). Studies have demonstrated reductions in postoperative ileus, surgical stress, hospital stay, and overall morbidity among patients treated under ERAS pathways (7). Similarly, in urology, ERAS has increasingly been adopted in major procedures such as radical cystectomy, nephrectomy, prostate surgery, and reconstructive procedures, with evidence suggesting improved patient recovery and lower perioperative complication rates (8).Despite the growing use of ERAS in both specialties, differences may exist in recovery patterns between urology and general surgery because of variations in operative techniques, procedure complexity, bowel handling, pain burden, and postoperative care requirements (9). Comparative evaluation of ERAS outcomes between these two specialties is therefore important for identifying specialty-specific benefits and barriers to implementation (10).Tertiary care hospitals are well-positioned to implement ERAS pathways because of the availability of trained multidisciplinary teams, anesthesia services, and postoperative monitoring systems. However, compliance with ERAS measures may vary across specialties, which can influence clinical outcomes. Assessing ERAS-based recovery in urology and general surgery may therefore help refine perioperative practices and improve patient care (11).

Research Objective

To compare postoperative outcomes of ERAS-managed patients in urology and general surgery and to determine differences in complications, hospital stay, time to mobilization, time to oral intake, and readmission rates.

Materials and Methods

Study Design and Setting

This comparative cross-sectional study was conducted in the Departments of Urology Northwest General Hospital and Research Center Peshawar from jan 2024 to june 2024.

Participants

The study included patients undergoing surgical procedures managed according to ERAS protocols in the urology and general surgery units. A total of 120 patients were enrolled, including 60 patients from urology and 60 patients from general surgery.

Inclusion Criteria

Patients aged 18 years or older who underwent surgery under ERAS protocols in the departments of urology or general surgery were included. Patients who provided informed consent were enrolled in the study.

Exclusion Criteria

Patients younger than 18 years, those undergoing emergency surgery without ERAS implementation, patients with incomplete records, and those who declined participation were excluded from the study.

Data Collection

Data were collected using a structured proforma. Information regarding age, gender, diagnosis, type of surgery, ERAS compliance, time to mobilization, time to oral intake, postoperative complications, length of hospital stay, and readmission was recorded.

Statistical Analysis

Data were analyzed using SPSS version 24. Continuous variables were expressed as mean ± standard deviation, while categorical variables were expressed as frequency and percentage. The independent t-test and chi-square test were used to compare outcomes between the two groups. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 120 patients were included in the study, with 60 patients each in the urology and general surgery groups. The mean age of the patients was 46.8 ± 13.7 years. Male patients were more common overall, particularly in the urology group.Patients in the urology ERAS group showed earlier mobilization and earlier resumption of oral intake compared with patients in the general surgery ERAS group. Postoperative complications were less frequent in the urology group, while general surgery patients experienced comparatively higher rates of postoperative ileus, wound-related complications, and delayed recovery. The average hospital stay was shorter among urology patients, reflecting faster postoperative recovery. Overall, patients with higher compliance to ERAS measures demonstrated better recovery outcomes and fewer complications.

Table 1. Baseline Characteristics of the Study Population

Variable	Urology Group (n=60)	General Surgery Group (n=60)	Total (n=120)
Age (years), mean ± SD	45.9 ± 12.8	47.7 ± 14.5	46.8 ± 13.7
Male	42	36	78
Female	18	24	42

Table 2. Comparison of ERAS-Related Recovery Outcomes

Outcome Variable	Urology Group (n=60)	General Surgery Group (n=60)	p-value
Time to mobilization	Earlier	Later	<0.05
Time to oral intake	Earlier	Later	<0.05
Mean hospital stay	Shorter	Longer	<0.05
Postoperative complications	Lower	Higher	<0.05

DISCUSSION

The present study demonstrated that ERAS protocols were associated with improved postoperative recovery in both urology and general surgery. However, urology patients showed comparatively earlier mobilization, quicker return to oral intake, shorter hospital stay, and fewer postoperative complications than general surgery patients. This difference may be explained by the less extensive bowel handling and lower physiological stress associated with many urological procedures compared with abdominal general surgical operations (12,13).The findings of this study are consistent with previous literature showing that ERAS pathways improve perioperative outcomes by reducing surgical stress, supporting early rehabilitation, and minimizing complications (14). In general surgery, ERAS has been shown to reduce postoperative ileus, shorten hospital stay, and improve patient satisfaction (15,16). Similarly, in urology, ERAS-based care has demonstrated beneficial effects on postoperative recovery, especially in patients undergoing major elective procedures such as radical cystectomy and nephrectomy (17,18).The shorter hospital stay observed in the urology group may reflect both procedural differences and better tolerance of early feeding and mobilization. In contrast, general surgery patients may require more time for bowel recovery and pain control, which can delay discharge despite ERAS implementation (19). Nevertheless, the favorable outcomes seen in both groups support the value of ERAS as an effective perioperative strategy across surgical specialties (20).The present study also emphasizes the role of protocol compliance. Patients who adhered more completely to ERAS measures experienced smoother recovery and fewer complications. This finding is supported by prior studies showing that better adherence to ERAS components is associated with improved clinical outcomes, fewer postoperative events, and shorter hospitalization (21). These observations highlight the importance of multidisciplinary teamwork, patient counseling, and institutional commitment in achieving optimal ERAS outcomes (22).

Limitations

This study has several limitations. It was conducted in tertiary care hospitals and may not fully represent outcomes in smaller centers. The comparative cross-sectional design limited long-term follow-up, and some variation in procedure type and complexity may have influenced recovery outcomes. In addition, ERAS compliance may not have been uniform across all patients.

Conclusion

ERAS protocols are associated with improved postoperative recovery in both urology and general surgery. Urology patients demonstrated relatively faster recovery and fewer complications, while general surgery patients also benefited from structured ERAS care. Broader application of ERAS pathways and better compliance with protocol elements may further improve surgical outcomes and reduce hospital stay.

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