Implementing ERAS Protocol in Colorectal Unit in Royal Medical Services, Jordan- An Audit

Feras ALmbaidin, Ghaith Qsous, Tareq Al-Soudi, Ahmad Abdoh, Mohammad Allibrahim, Ahmed Uriqat

Department of Surgery, Royal Medical Services, Jordan
Corresponding Author: Dr. Feras ALmbaidin
gaithgsous@hotmail.com

ABSTRACT

Objectives: The aim of this audit was to review the advantages and weaknesses of using ERAS (Enhanced Recovery After Surgery) protocol on patients who underwent elective colorectal surgery. Methods: From January 2015 to May 2017, all patients who underwent elective colorectal surgical procedures at the colorectal unit at King Hussein Hospital in Jordan were included in this audit. Data was collected from those patients’ files and follow up notes at the clinic. Results: Two hundred patients were included in our study. There were 115 female (57.5%) and 85 male patients (42.5%) with a mean age of 53 years (range 19 – 79 years). The mean duration of postoperative hospital stay was 4 days (range 3 – 9 days). These complications included DVT in 1 patient (0.5%), PE in 1 patient (0.5%), wound infection in 13 patients (6.5%), enterocutaneous fistula 1 patient (0.5%), infected vaginal stump 1 patient (0.5%), intestinal obstruction ‘including ileus’ affected 6 patients (3%) and other complications 5 patients (2.5%). 30 days in-hospital mortality 205% (5 patients). The re admission rate for different complications was 15.5% (31 patients). Conclusion: A decrease in the overall rate of postoperative hospital stay and rate of complications was recorded when using ERAS compared to the traditional recovery pathway. However, a higher readmission rate was noted. Thus, we highly recommended to use ERAS when performing colorectal procedures.

Keywords: ERAS, colorectal, audit

1. INTRODUCTION

Colorectal cancer is one of the commonest cancers worldwide, 90% of cases occur after the age of 50. It is the third leading cancer in the US and thesecond leading cause of cancer related deaths. The average lifetime risk for developing this cancer is 6%, but it increases up to 3-4 folds in patients with a positive family history. Men and women are affected in equal numbers. This cancer is most commonly sporadic but there are syndromes that can cause this cancer like familial adenomatous polyposis (FAP) and hereditary non-polyposis disease. The risk of cancer increases exponentially in these syndromes, for example up to 100% in FAP(1,2,3).

When considering colorectal cancer as one of the most common malignancies and its resection as one of the most common performed surgeries, then a certain protocol should be implemented in order to decrease the number of postoperative hospitalization days and the rate of complications. As a result, the cost of care will be significantly less. A popular guideline used in colorectal surgery is the Enhanced Recovery After Surgery (ERAS) protocol, it includes a group of perioperative, intraoperative and postoperative care pathways programmed to achieve early recovery after surgery by maintaining peri-operative organ function and decreasing the profound stress response after surgery. Applying this protocol has resulted in a decrease in the complications and reduction in the length of hospital stay(4).
The average length of the hospital stay following major colorectal surgery is 7-14 days. Strict implemented ERAS Protocol reduces the length of hospital stay to 2-3 days (5).

ERAS Components include:

3. Anesthesia: Normothermia, Mid-thoracic Epidural Analgesia and avoidance of fluid overload.
5. Post-Operative: Hydration, Multimodal and preventive pain control, Aggressive management of nausea and vomiting, early oral feeding and mobilization, nutritional support, early removal of urinary catheters and drains and the discharge criteria.

Table 1: Results of the audit in comparison to the guidelines

<table>
<thead>
<tr>
<th>Category</th>
<th>KHMC results</th>
<th>ERAS Guidelines</th>
<th>Without ERAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of hospital stay</td>
<td>4 days</td>
<td>4 days (4)</td>
<td>7-14 days (4)</td>
</tr>
<tr>
<td>Complications:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVT, PE</td>
<td>1 patient (0.5%), 1 patient (0.5%)</td>
<td>1.1-0.2% (4)</td>
<td>30% DVT (4), 1% PE</td>
</tr>
<tr>
<td>Wound infection</td>
<td>13 patients (6.5%)</td>
<td></td>
<td>9-15% (7)</td>
</tr>
<tr>
<td>Mortality</td>
<td>5 patients (2.5%)</td>
<td>0.4% (4)</td>
<td>6%-1.5%</td>
</tr>
<tr>
<td>Intestinal obstruction ‘including ileus’</td>
<td>6 patients (3%)</td>
<td>11% - 15% (6)</td>
<td></td>
</tr>
<tr>
<td>Readmission</td>
<td>31 patients (15.5%)</td>
<td>4.4% (4)</td>
<td>11%-7% (8)</td>
</tr>
</tbody>
</table>

2. METHODS

All patients who had surgery for colorectal pathology between January 2015 and May 2017 in colorectal unit of King Hussien Hospital in Jordan were included in this Audit. Data collected from patients files and included demographics, postoperative hospital stay, complications and mortality.

3. RESULTS

Out of 200 patients there were 115 female (57.5%) and 85 male patients (42.5%). The mean duration for the postoperative hospital stay was 4 days. The complications included DVT in 1 patient (0.5%), PE in 1 patient (0.5%), wound infection (first 30 days postoperatively) in 13 patients (6.5%), 5 patients died in the first 30 days postoperatively(2.5%), enterocutaneous fistula 1 patient (0.5%), infected vaginal stump 1 patient (0.5%) intestinal obstruction ‘including ileus’ affected 6 patients (3%) and other complications like renal colic and dehydration happened in 5 patients (2.5%). Finally, the total number of patients re admitted for different complications was 31 (15.5%).

4. DISCUSSION

Clinical Audit is usually done to assess and improve the quality of services and health care provided to patients. It can also help in decreasing the hospital costs by applying and choosing different protocols and guidelines.

ERAS protocol is one of guidelines used to reduce the length of stay in hospital, rate of complications and readmissions resulting in a decrease in the overall hospital costs. It also improves the quality of health care and the patient’s life styles. It contains 21 items divided under 3 major components (preoperative, intra operative, post-operative). ERAS is most frequently used in colorectal surgeries. According to our data and results, using ERAS protocol in the past 3 years resulted in a significantly shorter hospital stay when compared to traditional recovery pathways. The average length of stay after implementing ERAS guidelines is approximately 4 days in comparison to 7-14 days in traditional pathways (4).

ERAS guidelines for DVT and PE prophylaxis included using elastic stockings, smoking cessation for 4 weeks prior to operation, early mobilization and receiving pharmacological anticoagulants like LMWH decreased the risk of thromboembolic events to 1% compared to 30% in some studies which didn't implement ERAS (4).

Postoperative ileus is the most common cause of prolonged the length of hospital stay. ERAS stated early feeding postoperatively, using epidural analgesia, remove NG tube and using laparoscopic surgery resulted in reduction of ileus to 3.5% compared to 11-15% in patients not following ERAS\(^4,6\).

Wound infection is a multifactorial complication that depend on the sterility of the instruments, theater and the ward. ERAS protocol stated that antibiotics should be given 1 hour before surgery, to use only sterile techniques during surgery and do regular wound dressing in the ward. Eventually, the infection rate dropped to 6.5% compared to 11% in other pathways\(^7\).

Finally, the readmission rate was still high 16.5% when compared to ERAS 4.4 % or international literature 11%\(^4,8\).

5. CONCLUSION

ERAS protocols significantly improve the level of healthcare by reducing the complication rate and dropping the length of stay in hospital. Thus, it is highly recommended to use them on all patients who undergo elective colorectal surgeries in specific, in other surgical procedures as well.

DISCLOSURE

The authors report no conflicts of interest in this work.

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