

*Research Article***Comparative study between enhanced recovery and conventional protocols in colorectal surgery****Abdel fattah S. Abdel fattah, Ahmed M. Atia, Doaa A. Saad and Mostafa A. Ismail Gebaly**

Department of General Surgery, El-Minia Faculty of Medicine

Abstract

Introduction: Enhanced recovery after surgery (ERAS) is a multimodal Perioperative care pathway aiming to decrease the stress response during the surgical procedure to facilitate the maintenance of preoperative bodily compositions and organ function and to achieve early recovery. **Aim of the work:** To compare the outcomes between enhanced recovery and traditional protocols of management after colorectal surgery. **Patients and methods:** This study included 40 patients undergoing colorectal surgery, 20 patients managed by enhanced recovery and 20 patients managed by conventional protocols. **Results:** Patients managed by enhanced recovery have the same post-operative complications and less duration of hospital stay. **Conclusion:** Patients managed by enhanced recovery have comparable post-operative complications as the patients managed with traditional protocols and less duration of hospital stay.

Keywords: colorectal surgery, post-operative, traditional protocols**Introduction**

ERAS is a set of changes in perioperative care that represents a fundamental shift from the traditional management of the colorectal surgical patient. It uses an evidence-based framework for standardizing care, while simultaneously recognizing the needs of individual patients. The main components of ERAS center on new approaches to preoperative preparation of the patient (i.e. nutrition, hydration, and bowel preparation), post-surgical pain control, activity, and feeding (Gustafsson et al., 2013):

The main philosophy of the ERAS protocol is to reduce the metabolic stress caused by surgical trauma and at the same time support the return of functions that allow patients to get back to normal activities rapidly (Varadhan, Lobo, & Ljungqvist, 2010).

Aim of the work

This study aims to compare the results of using enhanced recovery after colorectal surgery versus the traditional protocols in management of colorectal surgery cases by comparing open surgery cases with each other's and laparoscopic cases with each other's regarding post-operative

complications and duration of hospital stay post-operative.

Patients and methods

This is a prospective study that has been held in General Surgery department Minia University Hospital on forty patients divided into 2 group; group A (20 patients) subdivided into 2 subgroups(A1 open surgery and A2 laparoscopic surgery) managed with enhanced recovery protocol and group B (20 Patients) subdivided into 2 subgroups (B1 open surgery and B2 laparoscopic surgery) managed with conventional methods after colorectal surgery. In each group we will compare open surgery cases with each other and laparoscopic cases with each other. Informed consents from all patients had been taken.

Inclusion criteria:-

- Any age above 16 years old.
- Both sexes.
- Benign and malignant colorectal diseases.
- Patient with hemoglobin level more than 9 gm. /dl and Albumin level more than 3 gm.
- Patients who agree to participate in our study.

Exclusion criteria:-

- Age less than 16 year
- Redo colorectal surgeries.
- Emergence cases like intestinal obstruction with acute abdomen.
- Patient unfit for surgery.
- Patient refusal to participate in our study.

In this study we have 40 patients divided into 2 main groups, the first group was 20 patients managed by enhanced recovery protocols after colorectal surgery, while the second group was 20 patients managed by the traditional protocols of management after colorectal surgery.

In each group we compared open surgery cases with each other's and laparoscopic surgery cases with each other's.

Results

Table (1) Post-operative complications:

Variable	Open Traditional	Open ERAS	p-value	Lap traditional	Lap EARS	p-value
Fever:			0.614			0.541
No	7(70%)	8(80%)		8(80%)	9(90%)	
Yes	3(30%)	2(20%)		2(20%)	1(10%)	
Leakage			0.531			0.146
No	8(80%)	9(90%)		8(80%)	10(100%)	
Yes	2(20%)	1(10%)		2(20%)	0(0%)	
Paralytic ileus			0.614			0.541
No	7(70%)	8(80%)		8(80%)	9(90%)	
Yes	3(30%)	2(20%)		2(20%)	1(10%)	
Distension			1.000			1.000
No	7(70%)	7(70%)		8(80%)	8(80%)	
Yes	3(30%)	3(30%)		2(20%)	2(20%)	
Vomiting			0.614			0.146
No	7(70%)	8(80%)		8(80%)	10(100%)	
Yes	3(30%)	2(20%)		2(20%)	0(0%)	
Wound infection			0.541			1.000
No	8(80%)	9(90%)		10(100%)	10(100%)	
Yes	2(20%)	1(10%)		0(0%)	0(0%)	

As regarding post-operative complications there are no significant differences between the studied groups.

Table (2) Duration of hospital stay post-operative:

Variable	Open Traditional	Open ERAS	p-value	Lap traditional	Lap EARS	p-value
Duration of hospital stay in days:	4-10	3-6	0.001**	5-8	4-5	0.047*
Range	5.9±2.02	3.7±0.94		5.8±1.22	4.6±0.51	
Mean ±SD						

As regarding the duration of hospital stay post-operative the results were high significantly different in open surgery cases and were significantly different in laparoscopic surgery cases.

Discussion

In the current study; we compared the outcomes of the patients managed with enhanced recovery protocol versus patients managed with trade-

tional methods after colorectal surgery. The post-operative complication and post-operative length of hospital stay were assessed. Our study included 40 patients; 20 patients (group A)

managed with enhanced recovery protocol, and 20 patients (group B) managed with traditional methods.

To sum up the post-operative complications of the current study; there was no significant difference between the study groups in terms of; fever, leakage, paralytic ileus, distension, vomiting, and wound infection and this matching with the study done by (Spanjersberg, van Sambeeck, Bremers, Rosman, & van Laarhoven, 2015), indicating that there is no significant differences regarding overall complications between ERAS and conventional groups, a subdivision in major complications also showed no difference between groups, nor did minor complications.

While in the study done by (Willem, Spanjersberg et al., 2011), found a significant risk reduction for all complications with ERAS group (RR 0.50; 95% CI 0.35 to 0.72). Moreover, a Cochrane review including 25 RCTs with 3526 participants did show a significant reduction in postoperative complications favoring laparoscopic surgery managed with ERAS protocol and this controversy may be due to our small sample size (Schwenk et al., 2005).

Regarding the length of hospital stay, there was a significant difference between the compared groups in terms of length of hospital stay. Our results were in accordance with the many published clinical trials and class I evidence meta-analysis. Suggesting that ERAS pathways appeared to decrease the length of stay and complication rates after major colorectal surgery without compromising patient safety (Lv et al., 2012).

Conclusion

From this study, it is seen that patients managed with enhanced recovery protocols have comparable post-operative complications e.g fever

and wound infection, and take less post-operative duration of hospital stay than patients managed with traditional protocols in colorectal surgery.

References

1. Gustafsson, U., Scott, M., Schwenk, W., Demartines, N., Roulin, D., Francis, N., . . . Soop, M. (2013). Guidelines for peri-operative care in elective colonic surgery: Enhanced Recovery After Surgery (ERAS®) Society recommendations. *World journal of surgery*, 37(2), 259-284.
2. Lv, L., Shao, Y., & Zhou, Y. (2012). The enhanced recovery after surgery (ERAS) pathway for patients undergoing colorectal surgery: an update of meta-analysis of randomized controlled trials. *International Journal of Colorectal Disease*, 27(12), 1549–1554.
3. Schwenk, W., Haase, O., Neudecker, J. J., & Müller, J. M. (2005). Short term benefits for laparoscopic colorectal resection. *Cochrane Database of Systematic Reviews*, 2.
4. Spanjersberg, W R, Van Sambeeck, J. D. P., Bremers, A., Rosman, C., & Van Laarhoven, C. (2015). Systematic review and meta-analysis for laparoscopic versus open colon surgery with or without an ERAS programme. *Surgical Endoscopy*, 29(12), 3443–3453.
5. Spanjersberg, Willem R, Reurings, J., Keus, F., & van Laarhoven, C. J. H. M. (2011). Fast track surgery versus conventional recovery strategies for colorectal surgery. *Cochrane Database of Systematic Reviews*, 2.
6. Varadhan, K. K., Neal, K. R., Dejong, C. H. C., Fearon, K. C. H., Ljungqvist, O., & Lobo, D. N. (2010). The enhanced recovery after surgery (ERAS) pathway for patients undergoing major elective open colorectal surgery: a meta-analysis of randomized controlled trials. *Clinical Nutrition*, 29(4), 434–440.