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Original Research Article

Eras: is it possible to follow it in a tertiary government hospital set up?

Sibaprashad Pattanayak, Binoy Kumar Maharana*, Manoj Kumar Behera, Tapan Kumar Malla, Manish Kumar

Department of General Surgery, MKCG Medical College, Berhampur, Odisha, India

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***Correspondence:**
Dr. Binoy Kumar Maharana,
E-mail: drbinoy2009@gmail.com

ABSTRACT

Background: Fast-track surgery (enhanced recovery after surgery) is a set of protocols to reduce surgical trauma and postoperative stress by decreasing pain and complications, improving outcomes and decreasing length of hospital, while expediting recovery following elective procedures without an increase in complications or readmission.
Methods: This was a prospective study over 2 years from March 2015 to February 2017 with 6 months follow up. 647 patients undergoing elective general surgery were followed up. Details regarding the age, sex, health status parameters and diagnosis collected. Preoperative evaluation, operative parameters and postoperative complications recorded. Post-operative course in hospital and any deviation of normal post-operative course and its management recorded and analyzed.
Results: In government hospital (MKCG Medical College, Berhampur, Odisha), following ERAS protocol completely is impossible. But most protocols in preoperative, intraoperative, postoperative phases were followed, leading to early discharge of patients without any complications in most cases. In my study, drains were given in 157 cases, nasogastric tube in 89 abdominal surgeries. 129 cases were performed under general anaesthesia and 518 cases under spinal/epidural/mid thoracic epidural anaesthesia. 60 underwent overnight fasting. All received carbohydrate loading, antibiotic prophylaxis, thrombo-prophylaxis before surgery. Bowel preparation done in 50 abdominal surgeries.
Conclusions: The study provided a strong evidence that ERAS is safe to practice in elective general surgeries. It is associated with decreased incidence of complications, significant reduction in duration of hospitalisation and reduction in overall morbidity and decreased rate of re-admission. Thus, improves patient's compliance.

Keywords: Elective surgeries, Eras, Government tertiary hospital, India

INTRODUCTION

ERAS (enhanced recovery after surgery) consists of a protocol of evidence based techniques to reduce surgical trauma and postoperative stress by optimising preoperative health parameters, minimizing pain, reducing complications, improving outcomes, and decreasing length of hospital stay while expediting recovery following elective procedures. The concept of fast-track surgery, also called enhanced recovery after surgery (ERAS) or multimodal surgery involves using various strategies to facilitate better conditions for surgery and recovery in an effort to achieve faster discharge from hospital and more rapid resumption of normal activities after both major and minor surgical procedures, without an increase in complications or readmissions.[1] Fast-track programs were started in Denmark by Professor Dr. Henrik Kehlet in 1990s, and are now being taken up worldwide. Fast track approach was first developed with the aim of improving outcomes in patients undergoing elective colorectal surgeries. There are no fixed guidelines to this method and has several

components which may or may not be included in studies. Fast-track protocol is designed, based on the local conditions and patient input.

Fast-track surgery involves the application of several evidence based practices to patient care in the perioperative setting. It recommends these practices because these practices help achieve 'faster' recovery after surgery than the 'slower' action of traditional perioperative methods. All such practices are known to individually improve patient outcome. The benefit is maximized when the practices are implemented together and in a coordinated manner, though the contribution of each measure to the overall improvement in outcome remains unclear.[2] The end result is faster recovery, which predominantly occurs through reduction in the impact of surgical stress on the patient; before, during and after the surgery.

Traditional perioperative care practices, such as overnight fasting before operation, mechanical bowel preparation and routine use of drains, nasogastric tubes and catheters, continue to be commonplace in many centres across India. Fast-track surgery has received a limited uptake response among general surgeons and gastrointestinal surgeons. Recent literature shows little evidence of the use of perioperative protocols for enhanced recovery in Indian medical institutions. For example, use of regional anaesthesia like epidural decreases stress and continuous infusion even in postoperative period permits better pain control leading to early mobilization and reduces the inhibition of gastro-colic motility that occurs with the use of opioids.[3] Some surgeons have adopted these principles, but these have not become an institutional policy. Even among them who use fast-track surgery, only some components are implemented, and the other components are avoided. For example, some surgeons find it difficult to abandon traditional practices such as mechanical bowel preparation, despite evidence to the contrary and even if there is no advantage.[4,5] The most commonly identified barriers were lack of awareness, lack of importance given to perioperative care, lack of initiative on the part of healthcare providers, and lack of interdepartmental coordination. In India, where a majority of healthcare services are provided by public sector hospitals, there is often a mismatch between the patient load and the available facilities, leading to long wait-lists for elective procedures and postponement of major elective surgery for one or the other reason. It is easier to imagine than doing that a structured perioperative programme such as fast-track surgery would streamline care and help increase patient turn-over rates. The cost benefit to the government due to this would diversify spending to improve other areas of healthcare services. The aim of the study is a to look into how much of ERAS protocols are practised in a government run tertiary care hospital like MKCG Medical College, Berhampur, Odisha, India and whether there is any scope of these protocols being followed fully and whether partial practice of fast-track protocols is helpful in patient's wellbeing.

METHODS

In the period of 2 years from March 2015 to February 2017 with 6 months of follow up, 647 number of patients underwent elective surgery in the department of general surgery at MKCG Medical College and Hospital, Berhampur, Odisha, India. Day care procedures were excluded from study like lipoma, Fibroadenoma. All the patients included in the study gave consent for their inclusion in the study underwent preoperative evaluation and their health status were recorded. Preoperative evaluations (counselling about surgical interventions, evaluation and optimization of existing organ function, nutritional status, fluid and carbohydrate loading, antibiotic and thromboprophylaxis, selective bowel preparation, minimal starvation and fasting) were carried out. Intra operative interventions like (short acting anaesthetics, mid thoracic epidural anaesthesia, elective use of nasogastric decompression, urinary catheterization, drainage tubes. Avoiding salt water overload, maintaining normothermia, minimal tissue handling) were practised. Postoperative interventions like (adequate analgesia like NSAIDS, prevention of nausea and vomiting, early removal of drains, nasogastric tube, catheters if given, early oral nutrition and mobilization, follow up post discharge) were done.

RESULTS

Table 1: Number of elective surgeries performed.

Type of elective surgery	Abdominal N=89	Non-abdominal (N=558)
Splenectomy	7	-
Blunt abdominal injury	6	-
Carcinoma colon	14	-
Open cholecystectomy	16	-
Gastro jejunostomy	14	-
Partial gastrectomy	22	-
Lateral pancreatico jejunostomy	6	-
Feeding jejunostomy	4	-
Inguinal hernia	-	215
Ventral and incisional hernia	-	47
Carcinoma penis	-	20
Hydrocele	-	88
Haemorrhoids	-	28
Carcinoma tongue	-	6
Rectal prolapse	-	21
Modified radical mastectomy	-	37
Hemithyroidectomy	-	21
Superficial parotidectomy	-	7
Breast conservation surgery	-	7
Toilet mastectomy	-	5
Total thyroidectomy	-	6
Fissure in ano	-	50

In present study, out of a total of 647 patients undergoing elective general surgeries who gave consent for their inclusion in the study, 89 were abdominal surgeries and 558 were non-abdominal in nature (Table1). Abdominal surgeries conducted were: splenectomy (7), blunt abdominal injury (6), carcinoma colon (14), open cholecystectomy (16), gastro jejunostomy (14), partial gastrectomy (22), lateral pancreatico-jejunostomy (6), feeding jejunostomy (4). Non-abdominal surgeries were: inguinal hernioplasty (215), ventral and incisional hernia (47), carcinoma penis (20), hydrocele (88), hemorrhoids (28), carcinoma tongue (6), rectal prolapse (21), modified radical mastectomy (37), hemithyroidectomy (21), superficial parotidectomy (7), breast conservation surgery (7), toilet mastectomy (5), total thyroidectomy (6), fissure-in-ano (50).

Out of 647 patients, 101 had serum Albumin <3mg% and 546 had level >3mg%. Bowel preparation was done in 50 (56.18%) patients out of 89 patients undergoing elective abdominal surgeries and none (0%) out of 558 patients undergoing non-abdominal surgeries.

Overnight fasting was carried out in only 60 (67.42%) patients out of 89 patients undergoing elective abdominal surgeries and none (0%) out of 558 patients undergoing non-abdominal surgeries. Antibiotic prophylaxis, thromboprophylaxis, carbohydrate loading was performed in all (100%) the patients. General anaesthesia was used in all (100%) the elective abdominal surgeries and in 40 (7.17%) patients undergoing non-abdominal surgeries. Spinal and/or epidural anaesthesia was used in 518 (92.83%) patients undergoing non-abdominal surgeries (Table 2).

Table 2: Pre and intra operative procedures and interventions.

		Elective abdominal surgery	Elective non-abdominal surgery
Serum albumin	<3 mg%	60	41
	>3 mg%	29	517
Bowel preparation		50 (56.18%)	0 (0.00%)
Overnight fasting		60 (67.42%)	0 (0.00%)
Antibiotic prophylaxis		89 (100.0%)	558 (100.0%)
Thromboprophylaxis		89 (100.0%)	558 (100.0%)
Carbohydrate loading		89 (100.0%)	558 (100.0%)
Spinal/epidural anaesthesia		12 (13.48%)	518 (92.83%)
General anaesthesia		77 (86.52%)	40 7.17%)
Drains		85 (95.51%)	68 (12.19%)

Drains were used in 85(95.51%) elective abdominal surgeries and in 68 (12.19%) patients undergoing non-abdominal surgeries like hydrocele (20), ventral and incisional hernia (27), modified radical mastectomy (11), hemi thyroidectomy (8), total thyroidectomy (2) (Table 3).

Table 3: Non-abdominal surgeries (n=558) requiring drainage tubes.

	Drains used
Hydrocele n=88	20 (22.78%)
Ventral and incisional hernia n=47	27 (57.45%)
Modified radical mastectomy n=37	11 (29.73%)
Hemi thyroidectomy n=21	8 (38.10%)
Total thyroidectomy n=6	2 (33.33%)
Total=199	68 (34.17%)

Postoperative interventions were followed like: A) oral feeding was started on 1.7th postoperative day in non-abdominal surgery unlike in abdominal surgery where oral feeding was started on 2.1th postoperative day (Table 4). All the events were delayed in elective abdominal surgeries than in elective non-abdominal surgeries. Prevention of postoperative pain was carried out by using epidural catheter route or by using NSAIDS in all elective surgeries. Postoperative nausea and vomiting was prevented in all cases also.

Table 4: Postoperative events of patient undergoing elective surgery.

	Elective non-abdominal surgery	Elective abdominal surgery
	Postoperative day	Postoperative day
Oral feeding stoppage	1.7 day	2.1 day
Removal of drain	2.4 day	3.5 day
Removal of foley's catheter	1.6 day	3.3 day
Removal of nasogastric tube	---	1.9 day
Passage of flatus	<1 day	2.1 day
Mobilization of patient	1.1 day	3.2 day

Table 5: Postoperative complications.

Complication	Elective abdominal surgery (N=89)	Elective non-abdominal surgery (N=8558)	All elective abdominal surgery (N=647)
Wound infection	4 (4.49%)	27 (4.84%)	31 (4.79%)
Anastomotic leak	1 (1.12%)	00 (0.00%)	1 (0.15%)
Secondary suturing	9 (10.11%)	3 (0.54%)	12 (1.85%)

In terms of complications, Wound infection in elective abdominal surgery was 4(4.49%) out of 89 where as in non-abdominal surgery it was 27(4.84%) out of 558 (Table 5). Anastomotic leakage occurred in 1(1.12%) patient of elective abdominal surgery where as it was 0 (0%) in non-abdominal surgery. Secondary suturing was done in 9 (10.11%) patients of elective abdominal surgery group and 3(0.54%) in elective non-abdominal surgery. Overall, wound infection happened in 31(4.79%) cases, anastomotic leak in 1 (0.15%) case and secondary suturing done in 12 (1.85%) patients out of 647 elective

general surgeries performed in the last 2 years. Serum albumin was <3mg% in all patients having complications like anastomotic leak (serum albumin 2.4mg%), secondary suturing (serum albumin 2.8mg%), wound infection (serum albumin 2.9mg%) (Table 6).

Table 6: Average serum albumin level in complications.

Complication	Serum albumin (mg%)
Wound infection	2.9
Secondary suturing	2.8
Anastomotic leak	2.4

Most of the patients were discharged within 3 days in non-abdominal and within 8 days in abdominal surgeries.

DISCUSSION

From the above results, it is quite clear that most of the protocols are followed at a Government run tertiary hospital in India like a MKCG Medical College, Berhampur, Odisha, India. Preoperative protocols like antibiotic and thromboprophylaxis and carbohydrate loading were followed in 100% patients undergoing elective surgery. Bowel preparation was carried out in 50 patients (56.18%) and overnight fasting in 60 patients (67.42%) undergoing elective abdominal surgery and in none (0%) undergoing elective non-abdominal surgery. All 518 (100%) non-abdominal surgeries and 12 (13.48%) abdominal surgeries were performed under spinal and/or epidural anaesthesia. General anaesthesia and drainage tubes were used in 77 (86.52%) and 85 (95.51%) elective abdominal surgery out of 89 cases and in (7.17%) and (12.19%) of elective non-abdominal surgery respectively. Postoperative events like (stoppage of oral feeding, removal of drains and foley's catheter, removal of nasogastric tube, passage of flatus, mobilization of patient) occurred earlier in non-abdominal than in abdominal surgery. Nasogastric tube was not used in non-abdominal surgery. Drain's removal was the last among above postoperative events which occurred on 3.5th day in abdominal and 2.4th day in non-abdominal surgery. Rate of complications like wound infection occurred in 31 (4.79%) patients, anastomotic leak in 1 (0.15%) and secondary suturing required in 12 (1.85%) among all patients undergoing both abdominal and non-abdominal elective surgeries. Serum Albumin was <3mg% in all the patients with postoperative complications. Patients were discharged within 8 days in all the elective surgeries which was comparable to study showing reduction of hospital stay decreased from 7 to 4 days.[6] There occurred reduced postoperative morbidity and complication leading to early ambulation, early return to work and better quality of life.[2,6-8] From the above discussion, it is clear that the fast track protocols can be implemented in a tertiary care set up government hospital in India.[6] But there are barriers to its implementation like lack of importance given to perioperative care, lack of awareness, lack of interdepartmental coordination. Still some of the protocols like overnight fasting, mechanical bowel preparation, use of drains, tubes, catheters continue to be used in patients though there is evidence that fast track protocols can be used in abdominal and/or reoperations.[9] Some components are used, and some are avoided like use of mechanical bowel preparation despite evidence to the contrary.[8] A large international study has shown that implementing a protocol is not sufficient to ensure early discharge.[10]

CONCLUSION

Although most of the protocols of ERAS is followed in the government run tertiary set up like medical colleges and hospitals, leading to early discharge of the patient with a very low rate of complication and morbidity, there is still a long way to go for its full implementation. Literatures to support the adoption of ERAS is available with evidence to support its implementation. But there are barriers to overcome before its successful implementation like; lack of awareness regarding the idea, lack of multidisciplinary coordination, lack of follow up, lack of will to implement it even after awareness. If these barriers are overcome, there is no reason the fast track protocol i.e.; ERAS (Enhanced Recovery After Surgery) cannot be successfully implemented at the government run tertiary care hospitals like medical colleges in the future.

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