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Introduction - Enhanced recovery after surgery (ERAS) protocols, also known as 'multimodal optimization', are a combination of evidence based strategies which work synergistically to expedite recovery after surgery.

Method – After obtaining institutional ethical committee approval and patient consent, the study was done on 60 ASA grade I and II patients undergoing major elective surgeries. Group A (control group) consisting of 30 patients receiving usual treatment protocol as per institutional guidelines. Group B (case group) received treatment protocol as per ERAS guidelines. For both groups incidence of PONV, dose of opioid for rescue analgesia, duration of stay in PACU and dose of opioid was studied and compared. SPSS 20 was used for statistical analysis, p value <0.05 was considered significant.

Results:

ABSTRACT

Variables	Group A	Group B	P value
Incidence of PONV	21	4	0.008
Length of stay in PACU (hrs)	14 ± 2	6 ± 0.5	0.033
Timing of rescue analgesia (min)	230 ± 9.7	360 ± 11.15	0.029
Dose of Opioid required(in mcg)	418 ± 11.87	180 ± 5.5	0.018

Conclusion: ERAS program can be safely implemented in major orthopedic, colorectal and pelvic surgeries with an early postoperative recovery, pain control, a shorter length of stay and than conventional strategies.

KEYWORDS : Major surgeries, Pain Control, Recovery.

INTRODUCTION

- Enhanced recovery after surgery (ERAS) protocols, also known as 'fast-track surgery' or 'multimodal optimization', are a combination of evidence based strategies which work synergistically to expedite recovery after surgery.
- It includes preoperative, intra-operative and postoperative recommendations.
- The underlying mechanism of ERAS protocols is thought to be an attenuation of the peri-operative stress response.
- The advantages of ERAS have been repeatedly borne out in a number of randomized clinical trials and meta-analyses.

AIM of study

- 1) To present the various components of enhanced recovery along with the rationale behind their inclusion.
- 2) To suggest strategies to facilitate their implementation and compliance in day-to-day clinical practice.
- 3) To propose directions for future research.

MATERIALS AND METHOD

After obtaining institutional ethical committee approval and patient consent, the study was done on 60 ASA grade I and II patients undergoing major elective surgeries. Group A (control group) consisting of 30 patients receiving usual treatment protocol as per institutional guidelines. Group B (case group) received treatment protocol as per ERAS guidelines. For both groups incidence of PONV, dose of opioid for rescue analgesia, duration of stay in PACU and dose of opioid was studied and compared.

Informed consent was taken from all patients.

SPSS 20 was used for statistical analysis, p value <0.05 was considered significant.

All the patients of Group B were given 200 mg of oral Pregabalin and 1000 mg of oral Acetaminophen preoperatively. They were also given 8 mg of IV Dexamethasone, 4 mg IV Ondansetron 20 minutes prior to end of surgery.

All patients of Group A were followed Institutional Protocol.

Exclusion criterion - Patients undergoing short surgical procedures lasting less than 30 minutes.

- Patients of ASA grade III & IV status.
- Patients who are bed ridden for more than 1 month.
- Cases requiring emergency Surgery.

Patient's characteristics	Group A	Group B	p value
Age	37.66 ± 9.77	36.56±7.4	0.472
Sex (Male: Female)	14:16	16:14	0.101
ASA Grade I :II	18:12	12:18	0.481
Weight (kg)	51.30 ± 11.15	49.70±7.0	0.309

COMPONENTS OF ERAS PROTOCOLS

1) Pre-operative counseling and training:

- All patients selected under study are counseled. Patients are provided with both verbal as well as written information.
- Provision of this information to patients is provided in the pre assessment clinic.

2) Curtailed fasting and preoperative carbohydrate loading:

- All the patients of Group B were followed standard fasting guidelines.
- They were given clear fluid containing 200 g of carbohydrate preoperatively.
- Group A patients were devoid of such supplement.

3) Benefits of mechanical bowel preparation:

- Oral mechanical bowel preparations was given to patients undergoing colonic resection and anastomosis.
- A single phosphate enema on the morning of the surgery was given to evacuate the rectum.
- Oral mechanical bowel clearance reduces the severity of sepsis in the event of an anastomotic leak.

4) Deep vein thrombosis prophylaxis:

 All patients undergoing surgery were given once daily low molecular weight heparin (Enoxaparin 20 mg) the night before

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surgery and continued for the entire length of the patient's hospital stay.

 In addition, graduated compression thromboembolic deterrent stockings (TEDs) were used.

5) Antibiotic prophylaxis:

- A single dose of antibiotics, covering both aerobic and anaerobic organisms, were administered just prior to incising the skin.
- When the procedures were prolonged (more than 4 hours) or if there was major blood loss a second dose was administered.

6) Goal directed intra-operative fluid therapy:

 Fluid administration was titrated according to variations in the central venous pressure, blood pressure, urine output, loss of blood and other losses.

7) Avoidance of post-operative drains and nasogastric tubes:

 In all cases of Group B routine abdominal drains and nasogastric tube were avoided as long as they were not required. When gastric decompression is required during surgery, a nasogastric tube was inserted temporarily and removed at the end of the procedure.

8) Short duration of epidural analgesia and local blocks:

- In all patients of Group B undergoing major surgeries were given epidural analgesia using Fentanyl 2mcg/ml) and a local anaesthetic solution (Bupivacaine 0.15%).
- It was initiated at the beginning of the procedure and continued for a maximum of 48 hours.
- Weaning from epidural analgesia was started 12 hours postoperatively. Alternatives to epidural analgesia transversus abdominis plane (TAP) block were used and other infiltrations with local anesthetic aimed at reducing post-operative opiate usage.

Post-operative Components:

1) Avoidance of opiates and the use of Paracetamol and NSAIDS: In all patients of Group B post-operatively, patients were given regular Paracetamol and NSAIDS such as Ibuprofen or Diclofenac for breakthrough pain. Opiates such as Tramadol, were avoided.

2) Early postoperative diet:

 All patients of Group B were allowed oral fluids as tolerated on the day of the surgery and built up to an oral diet over the next 24 hours. Patients who were not meeting their nutritional requirements by 72 hours after surgery were assessed by a dietician.

3) Early postoperative mobilization:

 In All patients of Group B a structured mobilization plan was initiated. Patients were helped to sit out in a chair on the evening of surgery or definitely by the first post-operative day. This was followed by gentle assisted mobilization either the same day or the next day.

4) Restricted amounts of intravenous fluid:

- In the majority of patients of Group B intravenous fluid administration was stopped by the second post-operative day, by which time adequate oral fluids was tolerated and indwelling epidural catheters removed.
- Balanced intravenous solutions such as Hartmann's[™] were prescribed in preference to Normal Saline (0.9% NaCl) to avoid sodium overload, Hyperchloremic acidosis and a delayed return of gut function.

RESULT

- The study showed that in comparison to Group A , Group B patients have-
- Decreased incidence of PONV,
- Decreased length of stay in PACU
- Decreased requirement of rescue analgesia

Variables	Group A	Group B	P value
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CONCLUSION

 ERAS protocol has showed overall improvement in patient condition and should be implemented in all major elective Surgeries.

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