

Enhanced Recovery After Surgery(ERAS) implementation in Total Knee Arthroplasty

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ABSTRACT

The concept of enhanced recovery after surgery or ERAS, also known as “fast track”, is to improve post – operative recovery by minimizing surgical stress and probability of organ dysfunction. ERAS was initially used in abdominal and colorectal surgeries, but in recent years, it has been successfully implemented in Orthopaedic elective surgeries such as TKA and THA. The aim of this study is to evaluate the differences between the application of ERAS protocols and Mini-approaches in TKA versus the classic approach to TKA without the application of ERAS protocols. Our results indicate that the combination of ERAS protocols and a MIS-Approach, can reduce post-operative complications, patient readmissions and length of stay in the hospital (LOS), as well as hospital resources and costs.

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INTRODUCTION

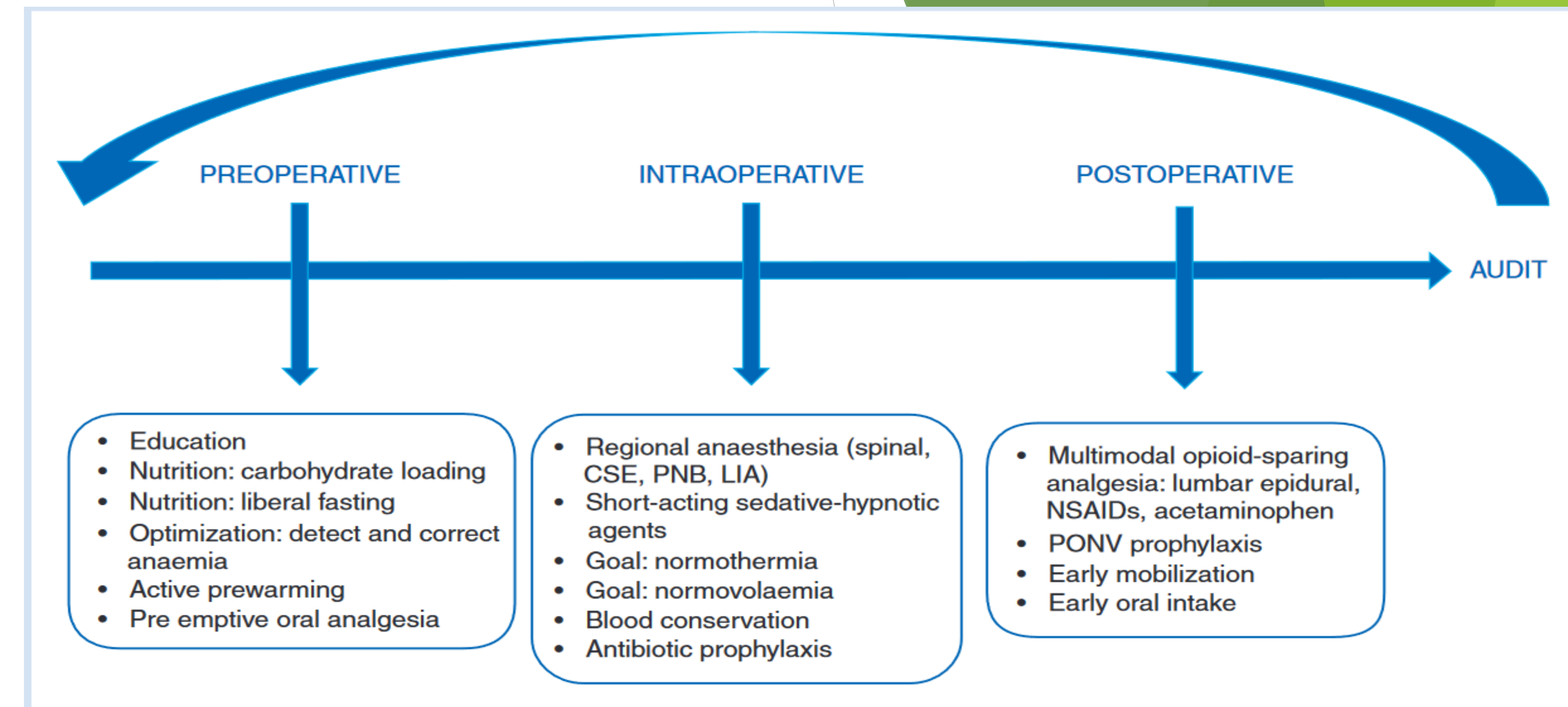
In 1997, Danish surgeon Henrik Kehlet first tried to establish the Enhanced Recovery After Surgery (ERAS) protocol. The aim was to reduce post-operative physical and psychological stress, thus reducing patient recovery time and financial cost. During the past two decades, the rate of total joint replacements has vastly increased with the aging population. It is estimated that over the next decade, rate of total joint replacement will increase around 100%. Length of hospital stay is a determining factor of monetary burden on the healthcare system. The implementation of ERAS programs has shown to significantly reduce hospital costs by reducing LOS, post-surgical complication rates and readmission rates. Length of stay can be decreased from 4-12 days to 1-3 days with the implementation of these protocols. In this study we report our experience with the implementation of ERAS protocols in a Greek NHS Hospital.

RESULTS

None of the patients in the first group presented any complications related to the surgical trauma or analgesia. All the patients with the exception of 1, were easily mobilized during the first post-surgical day and they had 90 degrees of flexion. None of the patients required a blood transfusion. Mean LOS was 3 ½ days (2-5 days). In the second group, 15 patients required at least 1 RBC unit. Mean LOS was 4 ½ days (3-7). One patient developed a deep infection treated with surgical debridement, liner replacement and 15 days of i.v antibiotics, followed by PO administration for 4 more weeks. Three months post surgery, patients of both groups had similar functional results. Our results indicate that implementation of ERAS protocols do reduce post surgical complications, length of hospital stay, readmission rate due to complications. There is a significant difference in terms of rehabilitation and pain when compared with traditional surgery and rehab protocols.

Materials & Methods

From 01-12-19 until 31-01-21, 80 patients with knee OA with varus deformity, underwent TKA. **In group A** 47 patients had a mini para-patellar approach without patella eversion, under opioid-sparing spinal anaesthesia and Local Infiltration Analgesia (LIA) using only ropivacaine. Wound closure was performed with absorbable subcuticular sutures without the placement of a drain. In this group 32 patients had a CR cementless femoral stem and 14 had an all cemented PS replacement. All patients, were administered a multimodal analgesic regime post-op and were mobilized no later than 12 hours after the surgery with full weight bearing. They were all encouraged to sit and mobilize independently. **In group B**, 33 patients underwent a classic TKA with patellar eversion, drain placement and administration of opioid analgesia and acetaminophen post-surgically. All the patients in the second group were mobilized at least 24h after surgery. Patients randomized to surgeon’s preference.



Discussion

• ERAS has revolutionized post op rehab after surgery.

In Intra-Operative Phase

1. MIS techniques allow for quick post-surgical recovery, reduced need for blood transfusions.
2. Spinal anesthesia offers a sympathetic block, resulting in a reduction of pulmonary complications, kidney injury, blood transfusion, LOS and 30-day mortality.
3. Local infiltration analgesia(LIA) administered intra-operatively contribute in pain & oedema reduction.

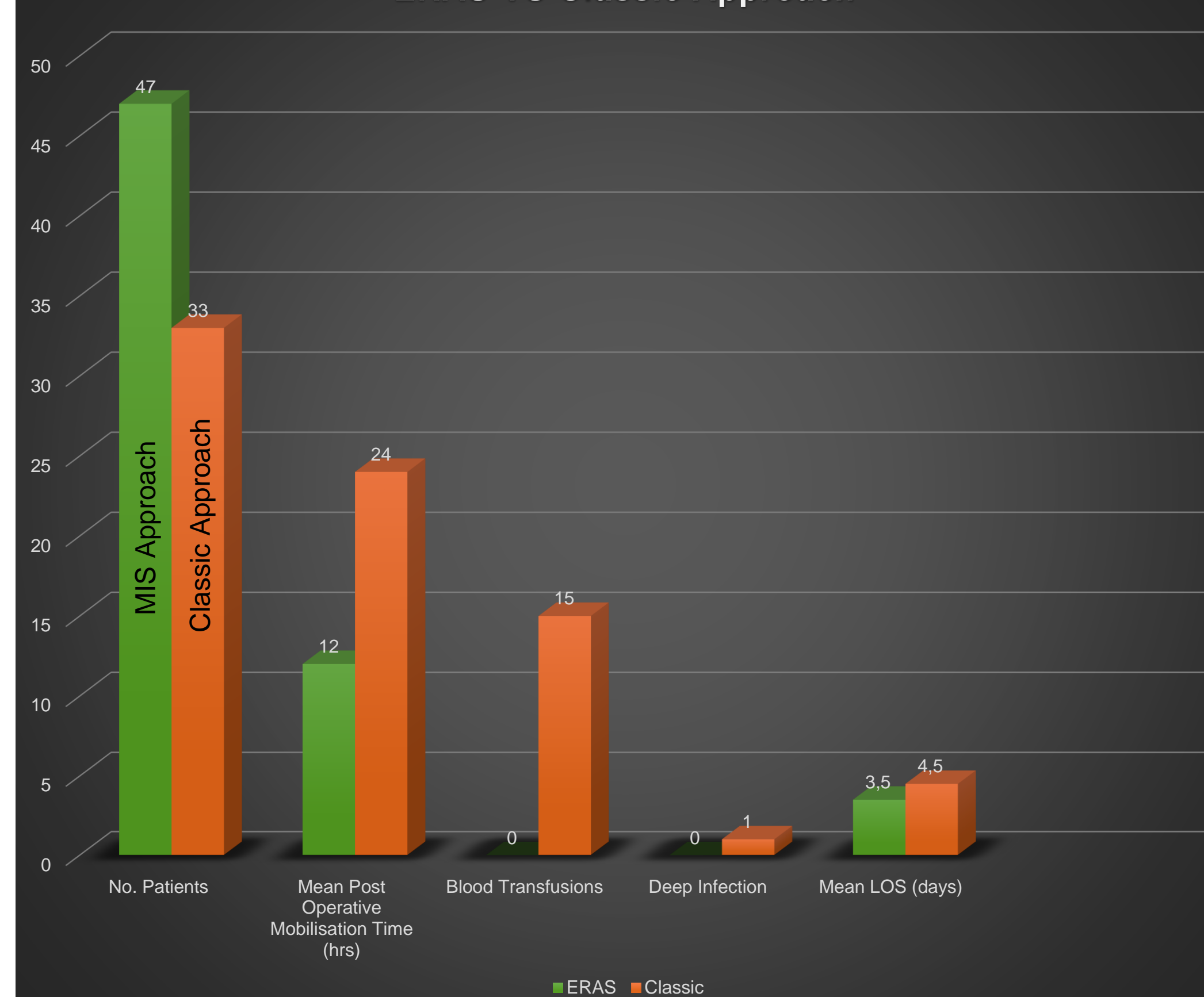
In post-operative phase are :

1. Multimodal opioid – sparing analgesia. A combination of different pharmacological classes and analgesics to provide effective post-operative pain relief.
2. Early mobilization and rehabilitation drastically reduce the risk of thromboembolism, wound healing, pulmonary complications and insulin resistance.

Conclusion.

Our data suggests that ERAS reduces post-surgical stress, transfusion rates, LOS and 30 day mortality rate. It allows for early mobilization, improves ROM and increases patient satisfaction. All these benefits translate to reduced monetary burden on the healthcare system.

ERAS VS Classic Approach



REFERENCES

1. Kehlet H. Multimodal approach to control postoperative pathophysiology and rehabilitation. *Br J Anaesth.* 1997;78:606–17.
2. Bardram L, Funch-Jensen P, Jensen P, Crawford ME, Kehlet H. Recovery after laparoscopic colonic surgery with epidural analgesia, and early oral nutrition and mobilisation. *Lancet.* 1995;345:763–4.
3. Frassanito L, Vergari A, Nestorini R, Cerulli G, Placella G, Pace V, Rossi M. Enhanced recovery after surgery (ERAS) in hip and knee replacement surgery: description of a multidisciplinary program to improve management of the patients undergoing major orthopedic surgery. *Musculoskelet Surg.* 2020 Apr;104(1):87–92. doi: 10.1007/s12306-019-00603-4. Epub 2019 May 3. PMID: 31054080.
4. Kaye AD, Urman RD, Cornett EM, et al. Enhanced recovery pathways in orthopedic surgery. *J Anaesthesiol Clin Pharmacol.* 2019;35(Suppl 1):S35-S39. doi:10.4103/joacp.JOACP_35_18
5. Soffin EM, YaDeau JT. Enhanced recovery after surgery for primary hip and knee arthroplasty: a review of the evidence. *Br J Anaesth.* 2016 Dec;117(suppl 3):iii62–iii72. doi: 10.1093/bja/aew362. PMID: 27940457.
6. Kaye AD, Urman RD, Cornett EM, et al. Enhanced recovery pathways in orthopedic surgery. *J Anaesthesiol Clin Pharmacol.* 2019;35(Suppl 1):S35-S39. doi:10.4103/joacp.JOACP_35_18