

Refining Multi-modal Analgesia for 21st Century

ERAS

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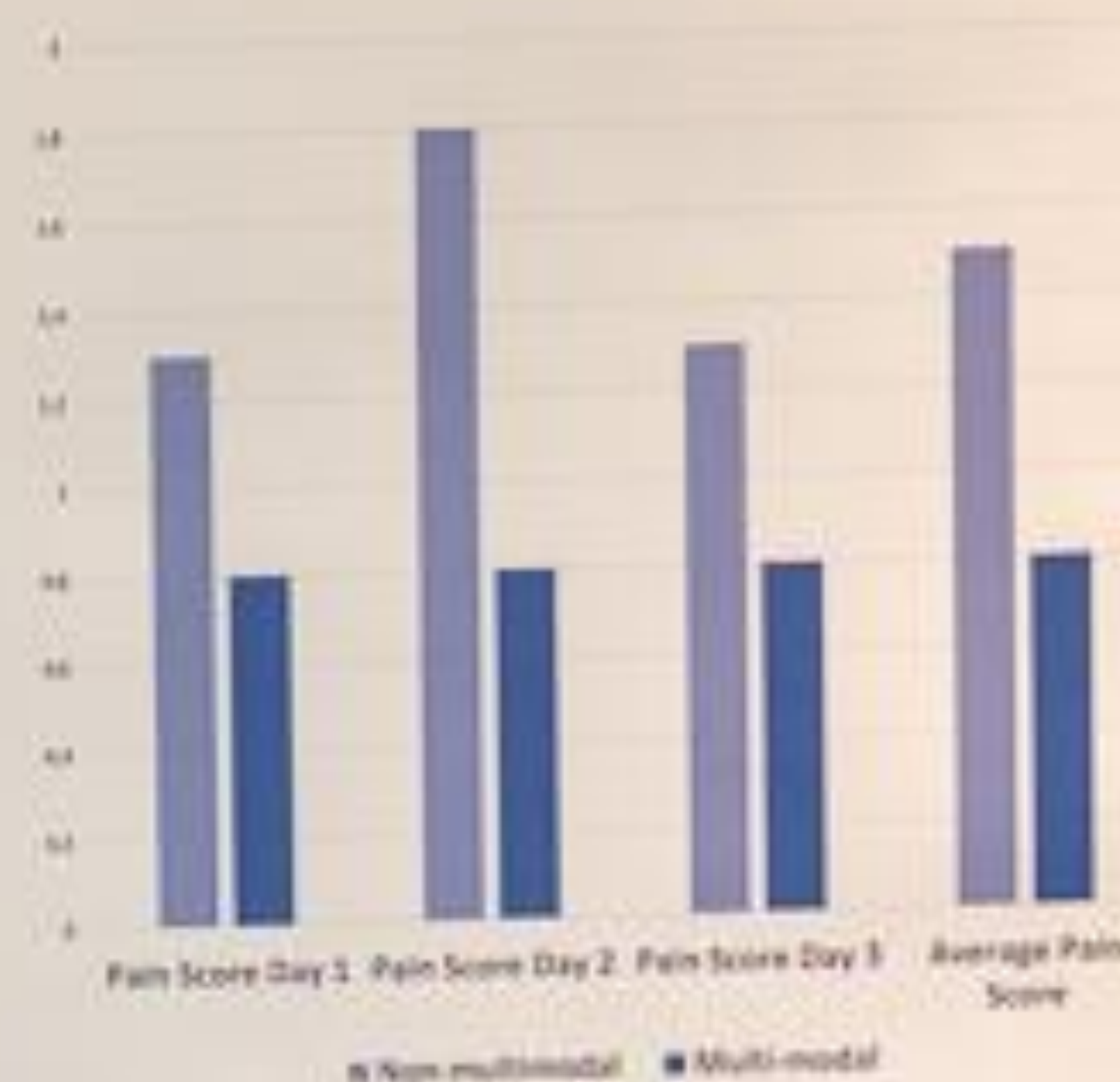
Aims and Objectives

Many Enhanced recovery after surgery (ERAS) programs focus on limiting opiate use, but few seek to define a specific multimodal strategy. We defined "multi-modal" as the use of **2 or more of a regional technique, intra-venous lidocaine, ketamine, clonidine or magnesium sulphate**. We then conducted an audit assessing whether use of this multi-modal approach influenced post-operative pain scores and length of stay in patients undergoing elective and emergency colorectal surgery at our district general hospital.

Method

This was a prospective audit. Data was collected for 35 patients who underwent an elective or emergency colorectal procedure (open, laparoscopic or laparoscopic converted to open). Patients were separated into those receiving multi-modal analgesia and those not receiving multi-modal analgesia. All patients received paracetamol either pre, intra or post-operatively and all patients received varying doses of opiates (either morphine, fentanyl or alfentanil) intra or post-operatively. Pain scores on day 0, 1 and 2 were collected and length of stay was calculated. Data was analysed using Microsoft excel.

Non multi-modal vs Multimodal Pain Scores.



Introduction

ERAS offers significant benefit to patients and healthcare systems, and good acute post-surgical pain management is essential. Limiting the use of opiates is beneficial (1), mainly due to reduction of the well documented side effect profile. Additionally, opioid hyperalgesia is well recognised and implicated in the development of chronic pain (2). A study of 39410 patients in Canada in 2014 showed that 3% were still receiving an opiate prescription 90 days post-surgery (3). Opiates have also been implicated in the recurrence of tumours both in vivo and in vitro (4, 5). Multimodal analgesia is defined as the use of more than one modality of pain control to achieve effective analgesia while reducing opioid-related side effects (6). Evidence is now emerging suggesting multimodal regimes have effects that surpass this definition and improve patient morbidity and mortality. Several RCT's have demonstrated that perioperative ketamine reduces the incidence of chronic post-surgical pain (7), and there is preliminary evidence that local anaesthetic agents (both intra-venous and via regional techniques) reduce the rate of cancer recurrence (4,5,8,9).

Results

Pain scores were lower on all days in the multi-modal group (average 0.77 compared to 1.49). The **average length of stay was 4.75 days lower** in the multi-modal group (11.5 compared to 6.75). Although there were more laparoscopic cases in the multimodal group (35% compared to 13%), when comparing like for like type of surgery, there were still reductions in both pain scores and average length of stay.

Open: 13 cases

	Pain Score Day 0	Pain Score Day 1	Pain Score Day 2	Average Pain Score	Length of Stay (Days)
Non Multi-modal	1.7	2.0	1.9	1.7	11
Multi-modal	0.8	0.7	1.1	0.9	7.1

Laparoscopic: 9 cases

	Pain Score Day 0	Pain Score Day 1	Pain Score Day 2	Average Pain Score	Length of Stay (Days)
Non Multi-modal	1.5	2.0	1.7	2.0	14.5
Multi-modal	0.8	0.4	0.2	0.4	5.7

Conversions: 13 cases

	Pain Score Day 0	Pain Score Day 1	Pain Score Day 2	Average Pain Score	Length of Stay (Days)
Non Multi-modal	1.0	1.5	1.3	1.3	11.1
Multi-modal	0.8	1.1	1.0	1.1	7.5

Discussion

In our audit, enhanced multi-modal analgesia delivered lower pain scores on all days analysed. In addition significantly lower average length of stay was observed. These results also held true when separating the groups by surgical technique. Our patient groups were well matched, apart from the laparoscopic group, in which there were only 2 cases in the non multi-modal group. The length of stay data is therefore skewed as these cases had admissions of 10 and 19 days, far longer than would be expected for elective surgery. However our open cases and laparoscopic conversions were well matched.

Conclusion

Enhanced multi-modal analgesia produces lower pain scores post-operatively and reduced length of stay.

An effective analgesic strategy is key to the ERAS initiative and contributes to both patient experience and length of stay. Additionally, evidence is emerging showing benefits of opioid sparing techniques well after the immediate post-operative period; namely the reduction in tumour recurrence rates, reduction in development of persistent post-surgical pain and opioid addiction. Further work will look to incorporate these more detailed and defined multi-modal strategies into current ERAS protocols.



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