

INTRATHECAL MORPHINE PLUS PATIENT-CONTROLLED ANALGESIA VERSUS PATIENT-CONTROLLED ANALGESIA ALONE IN COLORECTAL CANCER SURGERY



Peter Mac
Peter MacCallum Cancer Centre
Victoria Australia

JAMIE YOUNG^{1,2}, ALISTAIR MACPHERSON^{3,4}, ARTI THAKERAR³, MARLIESE ALEXANDER^{3,5}

¹Department of Medicine and Radiology, University of Melbourne, ²Department of Anaesthesia and Pain, Peter MacCallum Cancer Centre, ³Pharmacy Department, Peter MacCallum Cancer Centre, ⁴Pharmacy Department, Monash Health, ⁵Sir Peter MacCallum Department of Oncology, University of Melbourne

Background

Colorectal surgery is commonly performed for colorectal cancer and adequate analgesia is essential for patient comfort, recovery and reduction in hospital stay [1]. Currently there is a paucity of literature on the optimal use of ITM and patient controlled analgesia (PCA) for surgery in colorectal cancers. A review of the literature showed studies establishing the efficacy of different ITM doses for colorectal surgery and comparing ITM and PCA compared to PCA alone in an elderly population [4, 5]. Furthermore, a meta-analysis of randomised trials concluded that ITM in patients undergoing major abdominal surgery under general anaesthesia provides adequate postoperative analgesia [6]. However, this meta-analysis conducted by Myelan et al., 2009 did not evaluate the efficacy in cancer patients.

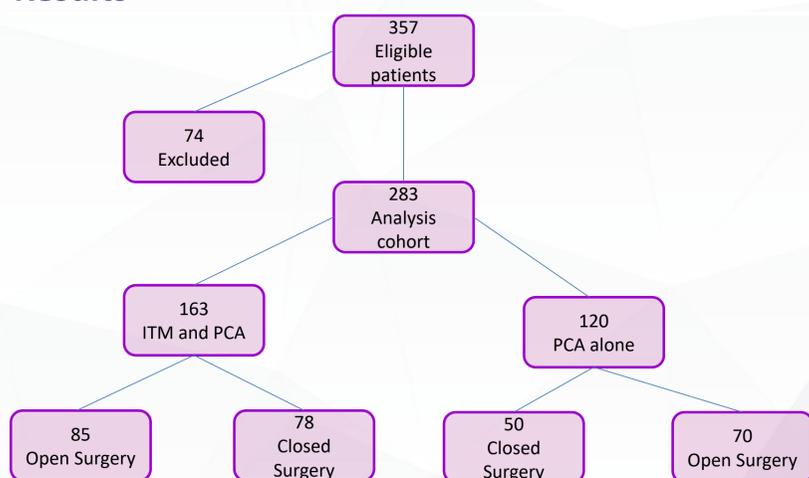
This retrospective study aims to add to the literature on the efficacy of ITM and PCA for surgery in colorectal cancers. This study will focus on an Australian cohort and compare ITM and PCA administration for analgesia as opposed to PCA alone in colorectal surgery. The hypothesis is that those who receive ITM and PCA will have improved pain severity scores after surgery, reduced total oral morphine equivalence dose (OMED), reduced adverse effects and reduced hospital stays.

Methods

This study was performed at Peter MacCallum Cancer Centre (Peter Mac), which is a large tertiary teaching hospital in Melbourne, Australia. Peter Mac is a dedicated cancer research and treatment centre. This study was approved by the PMCC Ethics Committee and undertaken in accordance with the National Statement on Ethical Conduct in Human Research 2007.

Participants were identified from hospital Acute Pain Services (APS) clinical dataset which comprises all cases referred to APS service, including most of all major colorectal cancer surgeries performed at the institution. Eligible patients underwent colorectal surgery between 23/7/14 and 17/6/18, were greater than 18 years of age, received 0.1mg to 0.3mg ITM and PCA or PCA alone. Those who had incomplete data were excluded.

Results



There was an overall reduction in OMED within the first 24 hours for those who received ITM and PCA compared with PCA only. Those who received ITM and PCA had 28.8mg less OMED than the PCA only group ($p < 0.001$). For open procedures specifically; the ITM and PCA group used 32.7mg less OMED than PCA only. There was also a reduction in median OMED for closed procedures and for those who received ITM compared to PCA only of 14.3mg (Table 1).

Even at 48 hours there was a lower OMED consumption with the ITM and PCA group of 60mg OMED compared to PCA only group of 75.1mg OMED. There were no significant differences between the two groups regarding pain scores at either time interval (Table 1).

Length of hospital admission and the side effect profile between ITM and PCA compared to PCA only did not differ significantly, with the exception of sedation in the PCA only group at the 48 hour time point ($p < 0.022$).

Table 1: OMED, pain score, nausea +/- vomiting, sedation and length of stay for overall, open and close surgeries

	24 hours			48 hours		
	ITM	no ITM	p-value	ITM	no ITM	p-value
Overall	n = 163	n = 120		n = 97	n = 38	
OMED (mg)	11.25	40	<0.001	60	75.1	0.060
Pain Score (worst)	4	5	0.012	5	5	0.722
Nausea +/- vomiting	33	25	1.000	31	13	0.852
Sedation	7	12	0.091	4	8	0.022
Length of Stay ²	9	8	0.417			
Open surgery	n = 85	n = 70		n = 63	n = 32	
OMED (mg)	16.3	49	<0.001	52.8	86.9	0.057
Pain Score (worst)	5	5	0.156	5	5	0.937
Nausea +/- vomiting	20	13	0.686	19	11	0.646
Sedation	3	9	0.031	3	6	0.090
Length of Stay ²	11	8	0.358			
Closed surgery	n = 78	n = 50		n = 34	n = 6	
OMED (mg)	6.8	21.1	0.001	62.5	59.3	0.925
Pain Score (worst)	3	4	0.031	4	4.5	0.308
Nausea +/- vomiting	13	12	0.623	12	2	0.264
Sedation	4	3	0.809	1	2	0.106
Length of Stay ²	7.5	9	0.756			

1 – p-value for comparison between ITM and no ITM groups; 2 – length of stay represents time from surgery to hospital discharge (24/48-hour review periods not applicable)
Abbreviations: LOS - length of hospital stay, OMED – oral morphine equivalence dose, ITM – intrathecal morphine

Conclusion

In conclusion, this retrospective study shows that ITM and PCA can achieve similar analgesic effects after open and closed colorectal surgery with PCA alone. In addition to this, ITM with a PCA resulted in a reduction of total median OMED and a lower prevalence of sedation compared with PCA alone. This study did not show any benefits in reducing nausea or length of hospital stay.

References

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