

Supplementary Digital Content

Supplementary Table 1: Baseline patient demographics for all included studies

		Number of Patients		Age (years)		Type of Surgery		Laparoscopic Approach		ASA 1:2:3:4	
Reference	ERAS or Traditional	Lidocaine	Placebo	Lidocaine	Placebo	Lidocaine	Placebo	Lidocaine	Placebo	Lidocaine	Placebo
Dewinter <i>et al.</i> ²	ERAS	50	25	60 (49-68)	62 (59-68)	Left-sided colectomy 32, right-sided colectomy 18	Left-sided colectomy 16, right-sided colectomy 9	50	25	9:30:11:0	7:14:4:0
Ho <i>et al.</i> ¹³	Not stated	28	29	57 (47-70)	66 (62-70)	Stoma formation 16 Anterior resection 14 Right hemicolectomy 4 Left hemicolectomy 1 Total colectomy 2 APR 2 Proctocolectomy	Stoma formation 12 Anterior resection 10 Right hemicolectomy 10 Left hemicolectomy 1 Total colectomy 3 APR 2 Proctocolectomy	0	0	1:22:5	0:19:10

						3 Other 2	1 Other 2				
Ahn <i>et al.</i> ²⁰ ENREF 17	Traditional	25	25	64.48±11.68	66.2±8.88	All colectomy	All colectomy	25	25	9:13:3	8:12:5
Kim <i>et al.</i> ²¹	Traditional	32	36	60.9±10.6	60.1±11.1	Right hemicolectomy 6 Left hemicolectomy 1 Anterior resection 14 Low anterior resection 10 Subtotal colectomy 1	Right hemicolectomy 8 Left hemicolectomy 3 Anterior resection 12 Low anterior resection 13 Subtotal colectomy 0	32	36	11:20:1	19:15:2
Tikuisis <i>et al.</i> ²²	Not stated	30	30	57.2±13.28	56±12.22	All left-sided colectomy	All left-sided colectomy	30 (all hand assisted)	30 (all hand assisted)	19:7:4	21:5:4
Staikou <i>et al.</i> ²³	Traditional	20	20	73.6±7.5	68.6±10.8	Right hemicolectomy 4 Left	Right hemicolectomy 4 Left	0	0	All ASA I-II	All ASA I-II

						hemicolecotomy 4 Sigmoidectomy 11 Low anterior resection 0 APR 1	hemicolecotomy 0 Sigmoidectomy 10 Low anterior resection 4 APR 2				
Elhafz <i>et al.</i> ²⁴	Traditional	9	9	61.2±11.4	59.3±12.6	Hemicolecotomy 5 Total colectomy 1 Proctocolectomy 2 Sigmoid resection 1	Hemicolecotomy 4 Total colectomy 3 Proctocolectomy 1 Sigmoid resection 1	9	9	2:5:2	3:5:1
Herroeder <i>et al.</i> ²⁵	Traditional	31	29	56.13±11.84	56.93±12.04	Ileocecal resection 2 Right hemicolecotomy 5 Left hemicolecotomy 1 Subtotal	Ileocecal resection 0 Right hemicolecotomy 5 Left hemicolecotomy 4 Subtotal	0	0	2:21:8	3:23:3

						colectomy 0 Proctocolectomy 1 Sigmoid resection 12 High anterior resection 2 Low anterior resection 3 Rectum extirpation 3 Others 2	colectomy 1 Proctocolectomy 3 Sigmoid resection 8 High anterior resection 3 Low anterior resection 1 Rectum extirpation 2 Others 2				
Kaba <i>et al.</i> ²⁶	ERAS	20	20	57±17	52±13	Right colectomy 3 Left colectomy 17	Right colectomy 6 Left colectomy 14	20	20	7:10:3	7:12:1
Kuo <i>et al.</i> ²⁷	Not stated	20	20	63 (50-75)	62 (46-85)	All colectomy for colon cancer	All colectomy for colon cancer	0	0	All ASA I-II	All ASA I-II

APR – abdominoperineal resection

Supplementary Table 2: Details of intravenous lidocaine and placebo interventions delivered

Reference	Point of Commencement of Intervention	Details of Lidocaine Intervention	Details of Placebo Intervention	Duration of Intervention	Any additional Intervention	Standard Postoperative Analgesia Provided
Dewinter <i>et al.</i> ²	At induction of anesthesia	Lidocaine bolus (1.5 mg kg ⁻¹) followed by a continuous infusion of 1.5 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	Until four hours after arrival in postoperative anesthesia care unit	Both groups received a quadratus lumborum (QL) block with normal saline	Acetaminophen 15 mg kg ⁻¹ , 4 day ⁻¹ Ketorolac 0.5 mg kg ⁻¹ , 3 day ⁻¹ Morphine PCA IV
Ho <i>et al.</i> ¹³	Immediately following induction	Lidocaine bolus over 5 minutes (1.5 mg kg ⁻¹ ; 2.5%, 0.06 ml kg ⁻¹) followed by continuous infusion of 1 mg kg ⁻¹ h ⁻¹ (2.5%, 0.04 ml kg ⁻¹ h ⁻¹)	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	For 48 hours following bolus dose	Nil	Fentanyl PCA IV (20 µg bolus, 5 minute lockout) for 72 hours
Ahn <i>et al.</i> ²⁰ ENREF 17	Two minutes prior to orotracheal intubation	Lidocaine bolus (1.5 mg kg ⁻¹) followed by continuous infusion of 2 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	Infusion administered during the operation only	Nil	Fentanyl PCA IV (0.3 µg kg ⁻¹ bolus, 15 minute lockout)
Kim <i>et al.</i> ²¹	Prior to skin incision	Lidocaine bolus (1 mg kg ⁻¹) followed by continuous infusion of 1mg kg ⁻¹ h ⁻¹ with 90 mg ketorolac	Normal saline bolus and infusion in equal quantities to the lidocaine infusion as well as ketorolac 90 mg	For 24 hours	Nil	Relaxation therapy initially for pain management followed by meperidine 25-50 mg injection as required

Tikuisis <i>et al.</i> ²²	Just before induction of anesthesia	Lidocaine bolus (1.5 mg kg ⁻¹ , max 100 mg) followed by continuous infusion of 2 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	For 24 hours	Nil	Continuous infusion of fentanyl 0.1 µg kg ⁻¹ h ⁻¹ for 24 hours postop If VAS >3 IV ketorolac 30 mg as required
Staikou <i>et al.</i> ²³	Before induction of anesthesia	Lidocaine bolus (1.5 mg kg ⁻¹) followed by continuous infusion of 2 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	At the completion of abdominal wall closure, prior to skin closure.	Thoracic epidural inserted to all – normal saline infusion to the lidocaine infusion and placebo groups (one additional group received lumbar epidural lidocaine)	Epidural ropivacaine 10 ml of 0.2% and morphine 1mg given to all patients during skin closure. Morphine PCEA with ropivacaine 2 mg min ⁻¹ (4 ml bolus, lockout 20 mins)
Elhafz <i>et al.</i> ²⁴	After induction of anesthesia	Lidocaine infusion 2 mg min ⁻¹ if body weight >70 kg or 1mg min ⁻¹ if body weight <70 kg.	Normal saline infusion in equal quantities to the lidocaine infusion	Stopped on the return of bowel function or fifth postoperative day, whichever were sooner.	Three lidocaine patches applied to the laparoscopic port sites in a separate group (not to the lidocaine or placebo groups)	Morphine PCA (2 mg demand, 10 min lockout)
Herroeder <i>et al.</i> ²⁵	Before induction of anesthetic	Lidocaine bolus (1.5 mg kg ⁻¹) followed by a continuous infusion of 2 mg min ⁻¹ commenced after	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	Until four hours following skin closure	Nil	Piritamide PCA (2 mg demand and 10 minute lockout) Metamizol 1 g every 6 hours for

		tracheal intubation				6 hours (or paracetamol 1 g if this were contraindicated)
Kaba <i>et al.</i> ²⁶	Just before induction of anesthesia	Lidocaine bolus (1.5 mg kg ⁻¹) followed by a continuous intraoperative infusion of 2 mg kg ⁻¹ h ⁻¹ which was reduced to a continuous postoperative infusion of 1.33 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	For 24 hours postoperatively	Nil	<p>Propacetamol 2 g IV every 6 hours for 24 hours then converted to oral paracetamol 1 g every 6 hours</p> <p>Ketorolac 30 mg IV every 8 hours for 24 hours</p> <p>Diclofenac 75 mg twice daily</p> <p>Tramadol 100 mg as required</p>
Kuo <i>et al.</i> ²⁷	Started 30 minutes prior to surgery	Lidocaine bolus (2 mg kg ⁻¹) over 10 mins followed by a continuous infusion of 3 mg kg ⁻¹ h ⁻¹	Normal saline bolus and infusion in equal quantities to the lidocaine infusion	At the end of surgery	Thoracic epidural inserted to all – normal saline infusion to the lidocaine infusion and placebo groups (one additional group received lumbar epidural lidocaine)	Morphine PCEA with ropivacaine 2 mg min ⁻¹ (4 ml bolus, lockout 15 mins)

IV – intravenous; PCA – patient controlled analgesia; PCEA – patient controlled epidural analgesia QL – quadratus lumborum

Supplementary Table 3: Summary of results of meta-analysis on IVL versus placebo

Outcome measure	All Studies	Laparoscopic Surgery	Open Surgery
Time to return of flatus	No significant difference (mean difference -5.33 hours, 95% CI -11.53 to 0.88 hours, $P=0.09$)	No significant difference (mean difference -3.78 hours, 95% CI -12.88 to 5.32, $P=0.42$)	Significant reduction in those receiving IVL (mean difference 8.4 hours, 95% CI -13.7 to -3.1 hours, $P=0.002$)
Time to defecation	Significant reduction in those receiving IVL (mean difference -12.06 hours, 95% CI -17.83 to -6.29, $P<0.0001$)	Significant reduction in those receiving IVL (mean difference -12.33 hours, 95% CI -18.63 to -6.03, $P=0.0001$)	No significant difference (mean difference -11.04 hours, 95% CI -23.56 to 1.48, $P=0.08$)
Pain at Rest – 4 hours	Significant reduction in those receiving IVL (-0.62, 95% CI -1.14 to -0.10, $P=0.02$)	No significant difference (-0.67, 95% CI -1.63 to 0.30, $P=0.17$)	Significant reduction in those receiving IVL (-0.75, 95% CI -1.04 to -0.45, $P<0.00001$)
Pain at Rest – 12 hours	Significant reduction in those receiving IVL (mean difference -0.58, 95% CI -0.82 to -0.33, $P<0.00001$)	Significant reduction in those receiving IVL (mean difference -0.80, 95% CI -1.16 to -0.44, $P<0.0001$)	Significant reduction in those receiving IVL (mean difference -0.32, 95% CI -0.63 to -0.01, $P=0.04$)
Pain at Rest – 24 hours	Significant reduction in those receiving IVL (mean difference -0.49, 95% CI -0.81 to -0.18, $P=0.002$)	Significant reduction in those receiving IVL (mean difference -0.62, 95% CI -1.14 to -0.10, $P=0.02$)	Significant reduction in those receiving IVL (mean difference -0.35, 95% CI -0.61 to -0.08, $P=0.01$)
Pain at Rest – 48 hours	No significant difference (mean difference -0.03, 95% CI -0.47 to 0.42, $P=0.91$)	No significant difference (mean difference -0.06, 95% CI -0.79 to 0.66, $P=0.87$)	No significant difference (mean difference -0.02, 95% CI -0.67 to 0.63, $P=0.95$)

Pain on Coughing – 4 hours	No significant difference (mean difference -0.50, 95% CI -1.02 to 0.03, $P=0.07$)	No significant difference (mean difference -0.21, 95% CI -1.02 to 0.60, $P=0.61$)	No significant difference (mean difference -0.89, 95% CI -1.85 to 0.07, $P=0.07$)
Pain on Coughing – 12 hours	Significant reduction in those receiving IVL (mean difference -0.69, 95% CI -0.97 to -0.41, $P<0.00001$)	Significant reduction in those receiving IVL (mean difference -0.93, 95% CI -1.39 to -0.46, $P=0.0001$)	Significant reduction in those receiving IVL (mean difference -0.55, 95% CI -0.90 to -0.20, $P=0.002$)
Pain on Coughing – 24 hours	No significant difference (mean difference -0.54, 95% CI -1.31 to 0.22, $P=0.17$)	No significant difference (mean difference -0.91, 95% CI -2.53 to 0.70, $P=0.27$)	No significant difference (mean difference -0.30, 95% CI -0.75 to 0.14, $P=0.18$)
Pain on Coughing – 48 hours	No significant difference (mean difference -0.22, 95% CI -0.85 to 0.42, $P=0.50$)	No significant difference (mean difference -0.69, 95% CI -1.90 to 0.51, $P=0.26$)	No significant difference (mean difference 0.09, 95% CI -0.86 to 1.04, $P=0.86$)
Overall Morphine Requirement	No significant difference (mean difference -8.86mg, 95% CI -21.87 to 4.15, $P=0.18$)	No significant difference (mean difference -3.31mg, 95% CI -15.01 to 8.39, $P=0.58$)	No significant difference (mean difference -13.79mg, 95% CI -35.75 to 8.18, $P=0.22$)
Hospital Length of Stay	Significant reduction in those receiving IVL (mean difference -0.76 days, 95% CI -1.32 to -0.19, $P=0.009$)	Significant reduction in those receiving IVL (mean difference -0.83 days, 95% CI -1.58 to -0.09, $P=0.03$)	No significant difference (mean difference -0.73, 95% CI -1.65 to 0.18, $P=0.12$)
Surgical Site Infection	----	No significant difference (RR 1.06, 95% CI 0.11 to 10.19, $P=0.96$)	----

Anastomotic Leak	No significant difference (RR 0.55, 95% CI 0.14 to 2.22, $P=0.40$)	No significant difference (RR 0.63, 95% CI 0.13 to 2.98, $P=0.56$)	----
Prolonged Postoperative Ileus	No significant difference (RR 0.43, 95% CI 0.18 to 1.02, $P=0.06$)	No significant difference (RR 0.60, 95% CI 0.21 to 1.72, $P=0.34$)	----

CI – confidence interval; IVL – intravenous lidocaine; RR – risk ratio