reference	participants' characteristics	intervention group/ control group	outcomes	critical appraisal/ conclusion
Fiorelli et al. 2016 Efficacy of wound analgesia for controlling post-thoracotomy pain: a randomized double-blind study Eur J Cardiothorac Surg. 2016;49(1):339-47	**inclusion criteria** - age >18 - ASA physical status I–III **exclusion criteria** - previous history of chronic pain - preoperative use of narcotics - previous thoracic procedures - recurrent operations - neurological signs such as movement limitation or cerebral confusion with inability to comprehend or perform verbal and physical instructions - incision different from muscle-sparing thoracotomy - allergy to LAs or morphine - inclusion in other studies on pain management **demographic data**: group W group C p male (%) 17 (63%) 15 (53%) 0.7 age (yrs) 63±1.5 62±7.1 0.8 Charlson comorbidity index 1.4±2.8 1.4±5.8 0.6 clinical stage Ia 2 (7%) 1 (3%) 0.6 Ib 7 (26%) 9 (32%) 0.7 IIa 8 (30%) 10 (36%) 0.7 IIb 10 (37%) 8 (29%) 0.7 FEV_1% 79.9±9.3 82.9±7.5 0.3 FVC% 83.1±6.5 86±5.1 0.1 **patient flow and follow up:** total patient number included: 60 randomised in: group W: 27 group C: 28 excluded: 5 analysed: 55	**intervention prior to anaesthesia** - not reported **mode of anaesthesia** - fentanyl **surgical approach** - lung resection via muscle-sparing thoracotomy without associated pleurectomy or chest wall resection **supplemental analgesia** - PCA morphine, initially 5 mg bolus, then 1.2 mg/h with 5–10 min lo - if VAS score was >4: additional dose of morphine or ketorolac (administered via intramuscular route at a dose of 15 mg every 6–8 h) **postoperative analgesia** - group W (wound infusion): continuous surgical wound site infusion of bupivacaine 10 mg then 2 mg/mL bupivacaine at a constant flow rate of 2 mL/h for 48 h - group C (control): saline solution delivered by a multiholed wound catheter	**postoperative pain [VAS]: mean±SD** VAS at rest h group W group C 6 7.2±0.8 7.3±0.6 12 6.0±0.6 6.2±0.6 24 5.1±0.7 6.0±0.7 48 4.7±0.7 5.9±0.6 72 4.7±0.8 5.3±0.4 96 4.3±0.6 5.1±0.3 120 3.4±0.7 4.0±0.5 h group W group C VAS on coughing 6 7.5±0.6 7.6±0.4 12 6.8±0.9 6.9±0.6 24 6.5±0.8 6.6±0.7 48 5.9±0.7 6.3±0.7 72 5.5±0.5 5.8±0.7 96 5.2±0.5 5.5±0.5 120 4.0±0.6 4.2±0.4 **requirement for additional analgesia [µg/mL]: mean±SD** - group W compared with the group C required significantly less of additional morphine injection (µg/mL) (p=0.03) postop h group group C T1: 0–6 2.6±0.5 2.7±0.4 T2: 6–12 3.3±0.5 3.4±0.4 T3: 12–18 3.2±0.4 3.5±0.4 T4: 18–24 3.1±0.7 3.4±0.3 T5: 24–30 2.9±0.6 3.2±0.3 T6: 30–36 2.0±0.4 3.1±0.3 T7: 36–42 2.4±0.5 2.8±0.3 T8: 42–48 1.7±0.6 2.1±0.4 **total dosage of morphine in 24 h [mg]:** - a significant reduction of total ketorolac consumption was observed in group W compared with group C (14.5±15.8 vs 26.4±11.4; p=0.01) **adverse effects/ events:** - none reported	**methodological shortcomings** - no reported who generated the random sequence **level of evidence: 1** **authors' conclusion** "Our data prove that wound analgesia is an effective, easy and safe procedure. It significantly reduces systemic inflammatory markers, pain scores and opioid intake; and accelerates the recovery of respiratory function."

reference	participants' characteristics	intervention group/ control group	outcomes	critical appraisal/ conclusion
	follow-up: 0 to 120 postop h			
Zhang et al. 2015 Comparison between intraoperative two-space injection thoracic paravertebral block and wound infiltration as a component of multimodal analgesia for postoperative pain management after video-assisted thoracoscopic lobectomy: A randomized controlled trial. J Cardiothorac Vasc Anesth. 2015;29(6):1550-6.	**inclusion criteria** - patients scheduled for VATS lobectomy - mentally conscious - ability to communicate **exclusion criteria** - patients unable to communicate - had a relevant drug allergy - analgesic drug intake within 1 month of the study **demographic data**: group P group I p age (yr) 55±9 57±7 0.284 BMI (kg/m2) 21.6±2.7 22.4±2.9 0.236 sex (m/f) 20/11 21/9 0.457 ASA grade(I/II) 7/24 11/19 0.228 duration of surgery (min) 86(74,118) 99(71,125) 0.385 Data are mean±SD, median (Q1, Q3), or n. There were no statistical differences between the groups regarding any of the reported parameters(p>0.05) **patient flow and follow up:** total patient number included: 70 randomised in: group P: 35 group I: 35 excluded: group P: 4 group I: 5 analysed: group P: 31 group I: 30 follow-up: 0, 2, 6, 24 h	**intervention prior to anaesthesia** **mode of anaesthesia** - sufentanil **surgical approach** - VATS lobectomy **supplemental analgesia** - 2 patients in group I were given extraintramuscular meperidine in the wards for complaints of inadequate analgesia caused by frequent cough **postoperative analgesia** - group P (PVB): 8mL 0.5% ropivacaine at fourth and seventh intercostal spaces with a 2-mL increment - placebo infiltration of wound with 40 mL normal saline - group I (infiltration): wound infiltration with 0.5% ropivacaine, to max volume 40 mL - placebo paravertebral block with 8 mL normal saline injected in the fourth and seventh intercostal spaces	**postoperative pain [VAS** - no significant difference found between groups for VAS pain scores at rest - pain scores on coughing were significantly lower at each time point in group P than in group I ($p<0.05$) **mean sufentanil use (μg) median (Q1, Q3)** group P group I p 45 (36,57) 48(38,59) 0.263 **mean morphine use 0–24 h (mg) median (Q1, Q3)** group P group I p 26 (10,35) 42 (29,58) 0.002 **overall patient satisfaction mean±SD** group P group I p 90±7 82±8 0.003 **adverse effects/ events: n (%)** group P group I dizziness 1 1 nausea and vomiting 2 4 pruritis 1 2	**methodological shortcomings** - study did not assess the sensory distribution of the PVB due to wish to maintain blinding of the investigator to the group allocation - the meperidine used was a violation of the study protocol. If the authors had not excluded the patients who received meperidine, the difference of morphine use between the 2 groups would have been greater. **level of evidence**: 1 **authors' conclusion** "as a component of a multimodal analgesia regimen, PVB provided a superior analgesic effect when compared with local infiltration after VATS lobectomy in terms of a lower degree of pain on cough, less consumption of total morphine during the first postoperative 24 h, and improved overall patient satisfaction scores ofanalgesia."