

Supplemental table B. Analysed randomised controlled trials

Reference (alphabetical order) 1 st author	Year	Country	Surgery	Level of insertion	Comparison (#patients included) [group not considered]	No of deaths		Mean age (years)		EA continued after surgery (h)	Mean length of follow up (d)	Quality score*
						EA	C	EA	C			
Abd El-Hakeem	2004	Egypt	thoracotomy for lung resection	thoracic	1. GA + TEA (bupivacaine 0.125% (8-12 ml/h) + rescue morphine i.v.) (12) 2. GA + postop. PCA morphine (12)	n/a	n/a	48,6	50,9	48	n/a	1/0/0/0
Addison	1974	UK	abdominal	thoracic	1. GA + TEA (intermittant bupivacaine 6 ml (unknown concentration)) (25) 2. GA + postop. intermittant pethidine i.m. on demand (25)	n/a	n/a	n/a	n/a	48	2	1/0/0/0
Ali	2010	Ireland	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 2 µg/ml (5-10 ml/h)) (37) 2. GA + postop. PCA (morphine 1 mg/ml) (23)	0	0	58,1	58,1	72	30	2/1/1/1
Aygun	2004	Turkey	lower abdominal	lumbar	[1. GA + postop. PCA tramadol (5 mg/ml) (20)] 2. GA + postop. PCA fentanyl (10 µg/ml) (20) [3. GA + LEA (PCEA tramadol 5 mg/ml) (20)] 4. GA + LEA (PCEA ropivacaine 0.125% + fentanyl 2 µg/ml (2 ml/h)) (20)	n/a	n/a	68,2	72,7	24	1	1/0/0/0
Azad	2000	Germany	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 4.5 µg/ml (4-10 ml/h)) (25) 2. GA + postop. PCA piritramid (25)	n/a	n/a	n/a	n/a	120	duration of hospital stay	1/1/0/0
Bakhtiyari	2007	Germany	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.16% + sufentanil 1 µg/ml (2-5 ml/h)) (66) 2. GA + postop. piritramide i.v. on request (66)	0	0	66	64	72	duration of hospital stay	1/0/0/0
Barratt	2002	Australia	abdominal	thoracic	1. GA + TEA (bupivacaine 0.25% + fentanyl 2.5 µg/ml (5-10 ml/h) + intravenous nutrition (12) 2. GA + TEA (bupivacaine 0.25% + fentanyl 2.5 µg/ml (5-10 ml/h)) (13) 3. GA + postop. PCA morphine + intravenous nutrition (10) 4. GA + postop. PCA morphine (12)	1	0	62,5	58	48	7	2/1/0/1
Barrington	2005	Australia	coronary artery bypass graft	thoracic	1. GA + TEA (Ropivacaine 0.2% + fentanyl 2 µg/ml (60) 2. GA + postop. Morphine infusion (60)	0	2	63	62	72	duration of hospital stay	2/1/0/2
Bauer	2007	France	thoracotomy	thoracic	1. GA + TEA (ropivacaine 0.2% + sufentanil 0.5 µg/ml (4-6 ml/h)) (34) 2. GA + postop. iv-PCA (morphine + droperidol) (34)	0	2	59,8	58,4	4	30	2/1/2/1
Behera	2008	India	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 5 µg/ml (PCA, no background infusion)) (15) 2. GA + postop. PCA (morphine) (15)	n/a	n/a	37	43	n/a	1	2/0/0/1
Berendes	2003	Germany	coronary artery bypass graft	thoracic	1. GA + TEA (PCEA bupivacaine 0.175% + sufentanil 0.75 µg/ml (5-7 ml/h)) (36) 2. GA + postop. piritramide i.v. on request (37)	1	3	61	59	120	720	2/1/0/1
Bew	2001	UK	peripher vascular	lumbar	1. GA + LEA (bupivacaine 0.125% + fentanyl 10 µg/ml) (15) 2. GA + postop. continuous i.v. morphine (15)	0	1	69	71	24	30	1/0/0/0
Bois	1997	Canada	aortic	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 10 µg/ml (6-9 ml/h)) (55) 2. GA + postop. PCA morphine (59)	0	0	66	65	48	duration of hospital stay	1/0/0/1
Boisseau	2001	France	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.2% + sufentanil 0.5-1 µg/ml (6 ml/h)) (25) 2. GA + postop. PCA morphine (25)	2	1	64,8	63,3	96	duration of hospital stay	2/1/0/2
Boylan	1998	Canada	abdominal aortic	lumbar	1. GA + LEA (bupivacaine 0.125% + morphine 0.1 mg/ml (4 ml/h)) (19) 2. GA + postop. PCA morphine (21)	0	0	70	68	48	duration of hospital stay	1/0/0/1
Bredtmann	1990	Germany	colonic	thoracic	1. GA + TEA (bupivacaine 0.25% (19.2 mg/h)) (57) 2. GA + postop. i.m. piritramide/tramadol (59)	0	2	n/a	n/a	72	90	2/0/0/1
Brodner	2001	Germany	major urologic	thoracic	1. GA + postop. Piritramide i.v. (15) [2. GA + intraop. TEA + postop. piritramide i.v. (15)] 3. GA + TEA (PCA-Ropivacaine 0.2% + sufentanil 1 µg/ml (5 ml/h)) (15)	n/a	n/a	62	59	120	duration of hospital stay	1/0/01
Buggy	2002	Ireland	abdominal	thoracic lumbar	1. GA + EA (PCEA bupivacaine 0.125% + fentanyl 4 µg/ml (5-8 ml/h)) (16) 2. GA + postop. PCA morphine (16)	0	0	60	58	24	1	2/1/1/2
Caputo	2011	UK	off pump coronary artery bypass	thoracic	1. GA + TEA-PCA (bupivacaine 0.125% + clonidine 0.3 µg/ml (10 ml/h)) (109) 2. GA + postop. PCA (morphine) (117)	1	0	65,9	65,5	72	180	2/1/0/2
Carli	2002	Canada	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 2 µg/ml (4-14 ml/h)) (32) 2. GA + postop. PCA morphine (32)	1	0	59	62	96	180	1/0/0/2
Carli	2001	Canada	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 2 µg/ml (4-14 ml/h)) (21) 2. GA + postop. PCA morphine (21)	1	0	68	64	96	duration of hospital stay	1/0/0/0
Chae	1998	Korea	mitral valve replacement	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 50 µg/ml (3-5 ml/h)) (12) 2. GA + postop. intermittant i.v. morphine on request (12)	n/a	n/a	35	30	72	3	1/0/0/0
Cohen	1997	USA	spine	lumbar	1. GA + LEA (PCEA bupivacaine 0.0625% + morphine 0.004%) (26) 2. GA + postop. PCA morphine (28)	n/a	n/a	45	45	72	duration of hospital stay	2/1/3/0
Colonna	2001	Italy	abdominal	thoracic	1. GA + TEA (Ropivacaine 0.2% + morphine 0.04 mg/ml (2 ml/h)) (25) 2. GA + postop. Continuous i.v. infusion of tramadol and ketorolac (20)	0	1	68,2	59,7	48	30	2/0/0/0
Cullen	1985	USA	abdominal	thoracic lumbar	[1. GA + EA (morphine 0.1 mg/ml (2-4 ml/h)) (18)] 2. GA + EA (bupivacaine 0.1 % (2-4 ml/h)) (15) 3. GA + EA (bupivacaine 0.1% + morphine 0.1 mg/ml (2-4 ml/h)) (15) 4. GA + EA (saline 2-4 ml/h) + postop. morphine 0.1 mg/kg i.m. or 0.03 mg/kg i.v. on request (15) 5. GA + postop. morphine 0.1 mg/kg i.m. on request or 0.03 mg/kg i.v (18)	n/a	n/a	n/a	n/a	72	3	1/0/0/1
Dahl	1994	Denmark	abdominal	thoracic	1. GA + TEA (bupivacaine 0.25% + morphine 0.05 mg/ml (4 ml/h)) (16) 2. GA + postop. morphine s.c. every 6 h + bolus on request (16)	0	0	49	46	38	32	1/1/0/0
Dauri	2003	Italy	renal transplantation	lumbar	1. GA + LEA (Ropivacaine 0.2% + fentanyl 2 µg/ml (5 ml/h)) (13) 2. GA + postop. i.v. tramadol (300 mg daily)	0	0	40	47	24	180	1/0/0/0
Davies	1993	Australia	abdominal aortic	thoracic	1. GA + TEA (bupivacaine 0.5% (Pm/h)) (25) 2. GA + postop. continuous i.v. morphine (25)	2	1	65	67	72	51	1/0/0/0
de Vries	2002	The Netherlands	coronary artery bypass graft	thoracic	1. GA + postop. piritramide s.c. on request (+ early extubation) (29) 2. GA + TEA (bupivacaine 0.125% + sufentanil 0.5 µg/ml (8-10 ml/h)) (+ early extubation) (28) [3. GA + posop. piritramide s.c. on request (+ prolonged ventilation postop.) (28)]	0	0	57	60	36	duration of hospital stay	1/0/0/1
Della Rocca	2002	Italy	abdominal	thoracic	1. GA + TEA (10 ml Lidocaine 1% bolus max. 3/6h + morphine 0.3 mg/h) (286) 2. GA + postop. PCA morphine (277)	2	3	59	57	48	duration of hospital stay	1/0/0/1
Doss	2001	USA	radical mastectomy	thoracic	1. GA + TEA (Ropivacaine 0.2% (4-6 ml) (30) 2. GA + postop. hydromorphone i.v. (30)	n/a	n/a	64	66	48	3	1/0/0/0
Fillinger	2002	USA	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 25 µg/ml (4-10 ml/h)) (30) 2. GA + postop. m+G71orphine i.v. (30)	n/a	n/a	61,7	63,8	24	duration of hospital stay	1/0/0/2
Fisher	2003	Canada	spine	lumbar	1. GA + LEA (PCEA bupivacaine 1 mg/ml + fentanyl (5 µg/ml (2 ml/h)) (36) 2. GA + postop. PCA fentanyl (10 µg/ml. bolus 20 µg. lockout: 10 min) (38)	n/a	n/a	50	51	72	duration of hospital stay	2/0/3/1
Garnett	1996	Canada	abdominal aortic	lumbar	1. GA + TEA (bupivacaine 0.1% + meperidine 2 mg/ml (5-15 ml/h)) (48) 2. GA + postop. cont. i.v. morphine (2-10 mg/h) (51)	0	2	68	69	48	30	1/0/0/1
Garutti	1999	Spain	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.375% (8-10 ml/h)) (30) 2. GA + postop. not specified opioids (30)	0	2	60,5	60,4	24	6 months	2/0/0/0
Gelman	1980	USA	abdominal	thoracic	1. GA + EA (intermittant epidural bupivacaine 0.5% 4-7 ml) (21) 2. GA + postop. Intermittant morphine on request (17)	0	0	36	39	48-72	n/a	1/0/0/0
George	1994	UK	abdominal	thoracic	1. GA + TEA (bupivacaine 0.2% + fentanyl 10 µg/ml (5 ml/h)) (10) 2. GA + postop. PCA morphine (11)	n/a	n/a	43	44	24	1	1/0/0/0
Gopinathan	2000	UK	orthopedic	lumbar	[1. GA + LEA (PCEA Diamorphine) (18)] 2. GA + subcutaneous diamorphine (20) 3. GA + LEA (PCEA bupivacaine 0.125% + diamorphine 15mg/60ml) (19)	n/a	n/a	69,9	67,1	48	2	2/1/1/1
Gottschalk	2004	Germany	spine	lumbar	1. GA + LEA (Ropivacaine 0.125% (10 ml/h) + i.v. PCA piritramide) (13) 2. GA + postop. PCA piritramide (13)	0	0	77,7	76,3	72	3	2/1/3/1
Gupta	2006	Sweden	radical prostatectomy	thoracic	1. GA + TEA (Ropivacaine 0.1% + fentanyl 2 µg/ml + adrenaline 2 µg/ml (10 ml/h) + PCA saline i.v.) (28) 2. GA + TEA (saline + PCA morphine) (28)	n/a	n/a	64,5	61,1	48	duration of hospital stay	2/1/3/1
Hansdottr	2006	Sweden	coronary artery bypass graft	thoracic	1. GA + TEA (PCA bupivacaine 0.1% + fentanyl 2 µg/ml (0.1 ml/kg/h)) (48) 2. GA + postop PCA morphine (49)	1	0	65	68	72	duration of hospital stay	2/1/1/2
Heijmans	2007	The Netherlands	coronary artery bypass graft	cervical	1. GA + intraop. Alfentanil + postop. piritramide i.m. on demand (12) 2. GA + intraop. remifentanil high dose + postop. piritramide i.m. on demand (12) 3. GA + intraop. remifentanil low dose + postop. piritramide i.m. on demand (12) 4. Ga + TEA (bupivacaine 0.125% + morphine 0.2 mg/ml (1.5 ml/h)) (12)	0	0	61	61	48	7	2/0/0/0
Hendolin	1987	Finland	abdominal	thoracic	[1. TEA (continuous bupivacaine 0.125% (12.5 - 25 mg/h)) (30)] 2. GA + TEA (continuous bupivacaine 0.125% (12.5 - 25 mg/h)) (30) 3. GA + postop. Oxycodone i.m. or i.v. on request (40)	1	0	55	55	24	5	1/0/0/0
Hjortso	1985	Denmark	abdominal	lumbar	1. GA + LEA (intermittent bupivacaine 0.5% + morphine) (44) 2. GA + postop. i.m. morphine 4-8 mg every 4-6 h (50)	1	3	66	64	24	60	1/0/0/1
Hong	2009	Korea	laparoscopic radical postatectomy	thoracic	1. GA + TEA-PCA (Ropivacaine 0.15% + fentanyl 10 µg/ml) (36) 2. GA + postop. PCA (fentanyl 10µg/ml) (36)	0	0	67	68,8	72	30	2/1/0/0
Jayr	1998	France	abdominal	lumbar	1. GA + LEA (Ropivacaine 2 mg/ml (10 ml/h)) (38) [2. GA + LEA (Ropivacaine 2 mg/ml (10 ml/h) + i.v. PCA morphine) (46)] 3. GA + postop. PCA morphine (46)	n/a	n/a	57	56	24	1	1/1/0/1
Jayr	1993	France	abdominal	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 0.25 mg/h (10 ml/h)) (78) 2. GA + postop. continuous s.c. morphine 2.5 mg/h (75)	n/a	n/a	58	56	120	duration of hospital stay	1/0/2/1
Jidéus	2001	Sweden	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.2% + sufentanil 1 µg/ml (3-7 ml/h)) (41) 2. GA + postop. Ketobemidone i.v. on request (80)	8	25	64	66	96	4	1/0/0/1
Jørgensen	2001	Denmark	abdominal hysterectomy	thoracic	1. GA + postop. Morphine on request + paracetamol + NSAIDs (20) [2. GA + intraop. TEA (single shot 16 ml Lidocaine 2%) (20)] 3. GA + posop. TEA (bupivacaine 0.2% (8 ml/h)) (20)	0	0	50,5	54	24	96	2/1/0/1
Kammoun	2008	Tunisie	thoracotomy	thoracic	1. GA + postop. PCA (morphine 1mg/ml) (22) 2. GA + TEA (bupivacaine 0.125% + fentanyl 5 µg/ml (8-12 ml/h)) (22) 3. GA + TEA (PCA: bupivacaine 0.08% + fentanyl 3 µg/ml (8 ml/h)) (22)	1	0	50	46	48	duration of hospital stay	1/0/0/0
Kataja	1991	Finland	abdominal aortic	thoracic lumbar	1. GA + TEA (bupivacaine 0.25% + fentanyl 0.05 mg/ml (7 ml/h)) (10) 2. GA + postop. oxycodone 3-5 mg i.v. on request (10)	0	1	67	64	n/a	n/a	1/0/0/0
Kendall	2004	UK	off pump coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 5 µg/ml (0.1 ml/kg/h)) (10) 2. GA (propofol) + postop. PCA morphine (10) 3. GA (isoflurane) + postop. PCA morphine (10)	0	0	66	63	48	n/a	1/1/1/1
Kentner	1996	Germany	lower abdominal	lumbar	1. GA + LEA (bupivacaine 0.1825% (8 ml/h)) (37) 2. GA + postop. PCA piritramide (37)	n/a	n/a	59,8	56,6	36	duration of hospital stay	1/0/0/1

Continuation Supplemental table B.

Reference (alphabetical order) 1 st author	Year	Country	Surgery	Level of insertion	Comparison (#patients included) [group not considered]	No of deaths EA	C	Mean age (years) EA	C	EA continued after surgery (h)	Mean length of follow up (d)	Quality score*
Kiliçkan	2006	Turkey	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% (4-10 ml/h)) (40) 2. GA + postop. PCA morphine (40)	n/a	n/a	61.1	58.6	72	3	2/1/0/0
Kim	2009	Korea	thoracoscopy	thoracic	1. GA + TEA-PCA (Ropivacaine 0.2% + fentanyl 5 µg/ml (4ml/h)) (18) 2. GA + postop. PCA (fentanyl + ketorolac) (19)	n/a	n/a	52.3	52.4	120	5	2/0/0/1
Kirov	2011	Russian Federation	off pump coronary artery bypass	thoracic	1. GA + TEA (ropivacaine 0.2% + fentanyl 2 µg/ml (3-8 ml/h)) (30) 2. GA + TEA-PCA (ropivacaine 0.2% + fentanyl 2 µg/ml (3-8 ml/h)) (30) 3. GA + postop. cont. i.v. fentanyl (30)	1	0	53.6	58.6	24	28	2/1/0/1
Kunstyr	2008	Czech Republic	pulmonary endarterectomy	thoracic	1. GA + TEA (bupivacaine 0.1% + sufentanil 1 µg/ml (3-8 ml/h)) (16) 2. GA + postop. sufentanil 0.1-0.2 µg/kg/h + paracetamol (16)	1	1	60	46.6	48	duration of ICU-stay	2/1/0/0
Kunstyr	2001	Czech Republic	cardiac	thoracic	[1. GA + TEA (ketamine 8 mg/ml + sufentanil 2 µg/ml (0.5-3.5 ml/h)) (20)] 2. GA + TEA (bupivacaine 0.125% + sufentanil 1 µg/ml (3-8 ml/h)) (20) [3. GA + postop. morphine 2 mg i.v. on request (20)] 4. GA + postop. PCA morphine (20)	0	0	62	58	72	duration of hospital stay	1/0/0/0
Lattermann	2007	Canada	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + 2µg/ml (10-15 ml/h)) (34) 2. GA + postop. PCA morphine (34)	0	0	69	66	48	duration of hospital stay	1/0/0/0
Levy	2011	UK	abdominal	thoracic	1. GA + TEA (bupivacaine 0.15% + fentanyl 0.0002% (4 -8 ml/h)) (30) [2. GA + spinal anaesthesia (2.5 ml bupivacaine + 0.25 mg diamorphine) (31)] 3. GA + postop. PCA morphine (30)	1	0	68	66	48	28	2/1/0/1
Licker	2003	Switzerland	thoracotomy	thoracic	1. GA + TEA (Bupivacaine 0.125% + fentanyl 2 µg/ml (6-9 ml/h)) (17) 2. GA + postop. PCA morphine (18)	0	0	59	58	48	2	2/1/0/1
Liem	1992	The Netherlands	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% + sufentanil 1 µg/ml (8-9 ml/h)) (25) 2. GA + postop. i.v. nicomorphine 0.1 mg/kg on demand (26)	n/a	n/a	58.9	60.3	72	duration of hospital stay	1/0/0/1
Liu	1995	USA	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + morphine 0.03 mg/ml (10 ml/h)) (14) [2. GA + TEA (morphine 0.05 mg/ml (10 ml/h)) (14)] 3. GA + TEA (bupivacaine 0.15% (10 ml/h)) (12) 4. GA + postop. PCA morphine (12)	1	0	62	62	>24	duration of hospital stay	1/0/0/1
Logas	1987	USA	pulmonary resection	thoracic	[1. GA + TEA (morphine 0.1 mg/ml (3-6 ml/h)) (12)] 2. GA + TEA (bupivacaine 0.1 % (3-6 ml/h)) (10) 3. GA + TEA (bupivacaine 0.1% + morphine 0.1 mg/ml (3-6 ml/h)) (11) 4. GA + TEA (saline 3-6 ml/h) + postop. morphine 0.1 mg/kg i.m. on request (10) 5. GA + postop. morphine 0.1 mg/kg i.m. on request (10)	n/a	n/a	n/a	n/a	72	3	1/0/2/0
Loick	1999	Germany	coronary artery bypass graft	cervical	1. GA + TEA (PCA) (bupivacaine 0.75% + sufentanil 1 µg/ml (2-3 ml/h)) (25) [2. GA + intra- and postop. clonidine infusion + PCA piritramide (24)] 3. GA + postop. PCA piritramide (21)	0	0	61	63	48	2	1/0/0/0
Lundström	2005	Denmark	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 25 µg/ml (5ml/h)) (26) 2. GA + postop. Morphine 5-10 mg on request (24)	n/a	n/a	66	63	96-120	4	2/0/0/1
Mann	2000	France	abdominal	thoracic	1. GA + TEA (PCEA bupivacaine 0.125% + sufentanil 0.5 µg/ml (3-5 ml/h)) (35) 2. GA + postop. PCA morphine (35)	n/a	n/a	76.1	76.8	72	duration of hospital stay	2/0/0/1
Miller	1976	Canada	abdominal	lumbar	1. GA + LEA (intermittant epidural lidicaine 1-2% hourly with epinephrine 1/200.000) (10) 2. GA + postop. intermittant meperidine i.m. on request (10)	n/a	n/a	49	55	24	duration of hospital stay	1/0/0/0
Majniče	1993	Denmark	abdominal	thoracic	1. GA + TEA (bupivacaine 0.25% + morphine 0.2 mg/h (4 ml/h)) (15) 2. GA + postop. morphine i.m. every 6 h + bolus on request (16)	0	0	54	45	38	2	1/0/0/1
Motamed	1998	France	abdominal	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 0.25 mg/ml (10 ml/h)) (28) 2. GA + postop. PCA morphine (29)	0	0	60	56	48	2	1/0/0/1
Muehling	2009	Germany	elective abdominal aortic aneurysma repair	thoracic	1. GA + TEA (Ropivacaine 0.2% + sufentanil 2 µg/ml) (Fast-track) (49) 2. GA + postop. PCA (piritramide) (Traditional) (50)	0	0	68	67	72	30	2/0/0/2
Muehling	2008	Germany	thoracotomy	thoracic	1. GA + TEA (Ropivacaine 0.2% + sufentanil 2 µg/ml) (Fast-track) (30) 2. GA + postop. PCA (piritramide) (Conservative) (28)	1	1	67	64	72	30	2/0/0/2
Neudecker	1999	Germany	laparoscopic colorectal resection	thoracic	1. GA + TEA (Ropivacaine 0.2% (6-12 ml/h) (10) 2. GA + postop. PCA morphine (10)	n/a	n/a	60	65	48	duration of hospital stay	1/0/0/0
Nishikawa	2007	Japan	laparoscopic cholecystectomy	thoracic	1. GA + TEA (PCA bupivacaine 0.125% + droperidol) (15) 2. GA + postop. PCA buprenorphine + droperidol (15)	n/a	n/a	70.9	71.2	?	3	2/1/0/0
Norris	2001	USA	elective abdominal aortic aneurysma repair	thoracic	1. GA + postop. PCA fentanyl (37) [2. GA + TEA intraop. (single shot bupivacaine + fentanyl) + postop. PCA fentanyl (39)] 3. GA + postop. TEA-PCA (bupivacaine 0.0625 + fentanyl 5 µg/ml) (38) 4. GA + intraop. TEA (single shot bupivacaine + fentanyl) + postop. TEA-PCA (bupivacaine 0.0625 + fentanyl 5 µg/ml) (46)	4	4	68	70	72	365	2/1/3/1
Nygård	2004	Denmark	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 25 µg/ml (5 ml/h)) (44) 2. GA + TEA (bupivacaine 0.125% + fentanyl 25 µg/ml (5 ml/h)) + amiodaron (35) 3. GA + postop. intermittant i.v. morphine on request + amiodaron (36) 4. GA + postop. intermittant i.v. morphine on request (48)	0	2	63.8	65.1	96	5	2/0/0/1
Omar	2010	Egypt	abdominal	lumbar	1. GA + postop. PCA (morphine 1 mg/ml) (25) 2. GA + TEA (bupivacaine 0.125% (4-5 ml/h) + fentanyl 25 µg) (25) 3. GA + TEA (bupivacaine 0.125% (4-5 ml/h) + fentanyl 25 µg + ketamine 0.3 mg/kg) (25)	n/a	n/a	52	50.1	24	n/a	2/1/0/0
Palmero	2005	Italy	thoracotomy	thoracic	1. GA + TEA (Ropivacaine 0.2% + fentanyl 4 µg/ml (5 ml/h)) (25) 2. GA + postop. continuous tramadol + ketorolac (25)	n/a	n/a	62	62	48	2	1/0/0/1
Palmero Rod.	2008	Spain	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.175% (6-8 ml/h)) (10) 2. GA + postop. cont. morphine (12)	1	1	68	63	48	180	2/0/0/0
Pan	2006	China	abdominal	thoracic	1. GA + TEA (PCA Ropivacaine 0.12% + sufentanil 0.5 µg/ml (4 ml/h)) (47) 2. GA + postop. PCA morphine (45)	0	2	61	63	48	30	2/0/0/1
Paulsen	2001	USA	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 5 µg/ml (8-10 ml/h)) (23) 2. GA + postop. PCA morphine (21)	0	1	61.3	65.1	72	duration of hospital stay	1/0/0/2
Pflug	1974	USA	abdominal/ orthopedic	thoracic lumbar	1. GA + postop. EA (bupivacaine 0.25-0.5% (3-5 ml/h)) + pulm. physiotherapy (10) 2. GA + postop. EA (bupivacaine 0.25-0.5% (3-5 ml/h)) (10) 3. GA + postop. intermittent s.c. morphine 10-15 mg + pulm. physiotherapy (10) 4. GA + postop. intermittent s.c. morphine 10-15 mg (10)	n/a	n/a	50.8	51.4	72	3	2/0/0/0
Priestley	2002	Australia	coronary artery bypass graft	thoracic	1. GA + TEA (Ropivacaine 1% + fentanyl 1 µg/ml (3-5 ml/h)) (50) 2. GA + postop. PCA morphine (50)	1	0	58	60	48	duration of hospital stay	2/1/0/2
Reinhart	1989	Germany	abdominal aortic	thoracic	1. GA + TEA (intermittent epidural bupivacaine 0.25%) (35) 2. GA (Halothan) + postoperative piritramide i.v. on request (30) [3. GA (NLA) + postoperative piritramide i.v. on request (40)]	3	3	63	60	24	duration of hospital stay	1/0/0/0
Rigg-MASTER-trial	2002	Australia	abdominal	thoracic lumbar	1. GA + EA (medication not specified) (447) 2. GA + systemic opioid analgesia (441)	24	26	?	?	72	30	2/0/0/2
Rimaltis	2003	Lithuania	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 5 µg/ml (3-6 ml/h)) (50) 2. GA + postop. i.m. pethidine 0.5 mg/kg every 4 h (50)	0	1	65	67	72	duration of hospital stay	1/0/0/1
Riwar	1992	Switzerland	adominal	lumbar	1. GA + LEA (bupivacaine 0.25% (6-12 ml/h)) (24) 2. GA + postop. continuous i.v. pentacocine (10 mg/h) (24)	1	0	64	68	48	duration of hospital stay	1/0/0/0
Rockemann	1997	Germany	abdominal	thoracic	1. GA + TEA (bupivacaine 0.25% + sufentanil 2 µg/ml (Bolus-PCA)) (31) 2. GA + postop. PCA morphine (31)	n/a	n/a	56	55	96	duration of hospital stay	1/0/0/0
Royse	2003	Australia	coronary artery bypass graft	thoracic	1. GA + TEA (PCEA ropivacaine 0.2% + fentanyl 2µg/ml (5-14 ml/h)) (37) 2. GA + postop. PCA morphine (39)	0	1	64.2	65.1	72	duration of hospital stay	2/1/0/1
Ryan	1992	Australia	abdominal	thoracic	1. GA + TEA (bupivacaine 0.5% + adrenaline (1/200000) (2-6 ml bolus hourly)) (45) 2. GA + postop. opioid-analgesia not specified (35)	1	1	?	?	72	14	1/0/0/1
Scheinin	1987	Finland	abdominal	thoracic	1. GA + postop. oxycodone 0.15 mg/kg i.m. on request (15) 2. GA + TEA (continuous bupivacaine 0.25% (4-6 ml/h)) (15) [3. GA + TEA (intermittent epidural morphine) (15)] [4. GA + TEA (contnuous epidural morphine (2-6 mg/d)) (15)]	0	0	59	56	48	duration of hospital stay	1/0/0/0
Schenk	2006	Germany	spine	lumbar	1. GA + LEA (ropivacaine 0.125% + sufentanil 1.0 µg/ml (14 ml/h)) (28) 2. GA + postop. PCA morphine 2 mg/ml (30)	n/a	n/a	42	50	72	3	2/0/3/1
Schricker	2004	Canada	abdominal	thoracic	1. GA + TEA (bupivacaine 0.1% + fenanyl 2 µg/ml (10-15 ml/h)) (10) 2. GA + postop. PCA morphine (10)	n/a	n/a	64	68	48	2	2/1/0/0
Schulze	1988	Denmark	abdominal	thoracic	1. GA + TEA (cont. bupivacaine 0.25% + morphine 4 mg every 8h) (12) 2. GA + postop. nicomorphine 10-15 mg every 4-6 h (12)	0	0	46	37	48	8	1/0/0/1
Schumann	2003	USA	abdominal	thoracic	[1. GA + wound infiltration with bupivacaine 0.25% + postop. PCA morphine (39)] 2. GA + TEA (bupivacaine 0.1% + meperidine 1 mg/ml) (14ml/h)) (39) 3. GA + posop. PCA morphine (36)	0	0	40	40.3	48	duration of hospital stay	2/1/0/2
Scott	2001	UK	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.125% + clonidine 0.6 µg/ml (10 ml/h)) (179) 2. GA + postop. PCA morphine (173)	1	2	59.2	58.8	96	duration of hospital stay	2/1/0/1
Seeling	1991	Germany	abdominal / urologic	thoracic lumbar	1. GA + EA (bupivacaine 0.25% + morphine 60 µg/ml (6-8 ml/h)) (95) [2. GA + EA (intermittant epidural Morphine 0.05 mg/kg on request) (90)] 3. GA + postop. PCA morphine (107)	4	4	60	60	72	duration of hospital stay	2/0/0/1
Seeling	1990	Germany	abominal	thoracic	1. GA + TEA (bupivacaine 0.25% + fentanyl 0.02 mg/ml (0.1 mg/kg/h)) (116) 2. GA + postop. piritramide i.v. or i.m. on request (98)	4	4	61	58	n/a	duration of hospital stay	1/0/0/1
Senagore	2003	USA	laparoscopic colorectal resection	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 20 µg/ml (4-6 ml/h)) (18) 2. GA + postop. morphine 1-4 mg every 3-4 hours (20)	0	0	53	54	24	duration of hospital stay	2/0/0/1
Sentürk	2002	Turkey	thoracotomy	thoracic	1. GA + TEA (PCA) (bupivacaine 0.1% + morphine 0.05 mg/ml (5ml/h)) (22) 2. GA + TEA (PCA) only postoperative (bupivacaine 0.1% + morphine 0.05 mg/ml (5ml/h)) (24) 3.) GA + postop. PCA morphine (23)	0	0	51	49	48	180	1/0/0/1
Sharma	2010	India	off pump coronary artery bypass	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 1 µg/ml (5 ml/h)) (30) 2. GA (30)	0	0	58.2	58	72	180	2/1/1/0

Continuation Supplemental table B.

Reference (alphabetical order) 1 st author	Year	Country	Surgery	Level of insertion	Comparison (#patients included) [group not considered]	No of deaths		Mean age (years)		EA continued after surgery (h)	Mean length of follow up (d)	Quality score*
						EA	C	EA	C			
Singelyn	2005	Belgium	orthopedic	lumbar	1. GA + postop. PCA morphine (15) [2. GA + postop. continuous femoral nerve block (bupivacaine 0.125% 10 ml/h) (15)] 3. GA + LEA (bupivacaine 0.125% (10 ml/h)) (15)	n/a	n/a	66	61	48	duration of hospital stay	2/0/0/0
Spence	1971	UK	upper abdominal	thoracic	1. GA + TEA (intermittant bupivacaine 0.5% + epinephrine (5-7 ml/2h)) (11) 2. GA + postop. intermittant morphine i.m. on request (10)	n/a	n/a	42	37	48	5	1/0/0/0
Steinberg	2002	USA	abdominal	thoracic	1. GA + TEA (PCEA ropivacaine 0.2% + fentanyl 2µg/ml (4ml/h)) (20) 2. GA + postop. PCA morphine (21)	0	0	62	61	144	duration of hospital stay	1/0/0/0
Stenseth	1996	Norway	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.5% + bolus morphine 4-6 mg (3 ml/h)) (26) 2. GA + postop. i.v. morphine on demand (26)	1	0	54,6	55,8	72	6	2/1/0/1
Susa	2004	Italy	abdominal	thoracic	1. GA + TEA (PCEA Ropivacaine 0.1% + sufentanil 0.5 µg/ml (5 ml/h)) (20) 2. GA + postop. continuous morphine (20)	0	0	66	69	48	4	1/0/0/0
Svircevic	2011	The Netherlands	cardiac	thoracic	1. GA + TEA (bupivacaine 0.125% + morphine 0.08 mg/ml (4-8 ml/h)) (325) 2. GA + postop. continuous morphine infusion 1-4 mg/kg (329)	3	7	65	64	48	365	2/1/0/2
Taqi	2007	Canada	laparoscopic colorectal resection	thoracic	1. GA + TEA (bupivacaine 0.1% + fentanyl 3 µg/ml (5-15ml/h)) (25) 2. GA + postop. PCA morphine (25)	0	0	65	61	72	4	1/0/0/0
Tenenbein	2008	Canada	coronary artery bypass graft	thoracic	1. GA + TEA (Ropivacaine 0.2% + hydromorphone 15 µg/ml (5 ml/h)) (25) 2. GA + postop. PCA morphine (25)	n/a	n/a	60,1	60,8	48	5	2/0/0/2
Tenling	2000	Sweden	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.2% + sufentanil 1 µg/ml (3-7 ml/h)) (15) 2. GA + postop. ketobemidone (14)	n/a	n/a	62,7	60,4	24	1	1/1/0/1
Tikuisis	2009	Lithuania	radical prostatectomy	thoracic	1. GA + TEA (bupivacaine 0.25% (3-5 ml/h)) (27) 2. GA (27)	0	1	60,3	60,7	96	180	2/1/0/0
Tikuisis	2004	Lithuania	radical esophagectomy	thoracic	1. GA + TEA (bupivacaine 0.25%) (18) 2. GA + postop. Morphine on request (18)	4	5	51,1	57,1	96	15	2/0/1/1
Tsui	1997	Hong Kong	gynecological laparotomy	lumbar	1. GA + LEA (bupivacaine 0.0625% + fentanyl 3.3 µg/ml (10 ml/h)) (57) 2. GA + postop. PCA morphine (54)	n/a	n/a	51	48	48	2	1/0/0/1
Tuman	1991	USA	abdominal aortic	thoracic lumbar	1. GA + EA (bupivacaine 0.1% + fentanyl 0.001% (5-8 ml/h)) (40) 2. GA + oral or parenteral opioids on request (40)	0	0	69,6	65,5	72	14	1/0/0/0
Turunen	2009	Finland	laparoscopic sigmoidectomy	thoracic	1. GA + TEA (Ropivacaine 2 mg/ml (0.1 ml/kg/h)) (29) 2. GA + postop. oxycodone i.m. + paracetamol + ketoprofen (29)	0	0	58,5	55,8	48	180	2/1/0/2
Volk	2004	Germany	spine	lumbar	1. GA + LEA (PCEA Ropivacaine 0.125% + sufentanil (1 µg/ml (12 ml/h)))(27) 2. GA + postop. PCA morphine (27)	0	0	75	75	96	30	2/1/1/0
Volk	2003	Germany	coronary artery bypass graft	thoracic	1. GA + TEA (bupivacaine 0.25% (6-12 ml/h)) (13) 2. GA + postop. PCA piritramide (13)	0	0	68	64	24	duration of hospitall stay	2/1/0/0
Von Dossow	2001	Germany	thoracotomy	thoracic	1. GA + TEA (bupivacaine 0.25% (6-10 ml/h)) (25) 2. GA + postop. PCA piritramide (25)	0	0	59	61	72	n/a	1/0/0/0
Xue	2000	China	Abdominal/thoracic	thoracic	1. GA + TEA (Ropivacaine 0.125% + morphine 20 µg/ml (3-5 ml/h)) (12) 2. GA + postop. PCA morphine (12)	0	0	n/a	n/a	48	duration of hospitall stay	1/0/0/0
Yeager	1987	USA	major abdominal/ thoracic/urologic	thoracic lumbar	1. GA + EA (intermittent bupivacaine 0.25%) (28) 2. GA + postop. parenteral opioid on request (25)	0	4	71,2	71,5	31	duration of hospitall stay	1/0/0/2
Yokoyama	2005	Japan	radical esophagectomy	thoracic	1. GA + 2 x TEA (Ropivacaine 0.2% + fentanyl 4 µg/ml (4 ml/h)) (15) 2. GA + postop. cont. morphine 1 mg/h (15)	n/a	n/a	60	62	72	3	1/0/0/0
Yoshioka	2006	Japan	thoracoscopy	thoracic	1. GA + TEA (bupivacaine 0.25% + fentanyl 1 mg single shot)(2 ml/h)) (24) 2. GA + pentazocine i.m. (22)	n/a	n/a	64,4	62,4	48	2	1/1/0/0
Zingg	2009	Switzerland	laparoscopic colorectal resection	thoracic	1. GA + TEA (bupivacaine 0.125% + fentanyl 2 µg/ml (6-12ml/h)) (39) 2. GA + PCA morphine (36)	0	0	64,8	60,6	120	30	1/0/0/2
Zitzelsberger	1990	Germany	abdominal cancer	thoracic	1. GA + TEA (bupivacaine 0.125% (12-20 ml/h)) (10) 2. GA + postop. piritramide i.v. or i.m. on request (10)	0	0	58	60	120	365	2/1/0/0
Zutshi	2005	USA	abdominal	thoracic	1. GA + TEA (PCA bupivacaine + fentanyl) (31) 2. GA + postop. PCA morphine (28)	0	0	44,5	47,4	48	duration of hospitall stay	2/1/0/2

*Quality score: randomisation (0-2 points)/concealment of treatment allocation (0-1)/blinding (0-3)/descriptions of withdrawals (0-2). C = control (systemic opioid-based analgesia); EA = epidural analgesia; GA = general anesthetic; TEA = thoracic epidural analgesia; LEA = lumbar epidural analgesia; IM = intramuscular; SC = subcutaneous; PCA = patient-controlled analgesia; n/a = not applicable (no data reported)