

Appendix Table 4. Abstracted Data for Eligible Randomized Trials, Continued*

Author, Year (Reference)	Outcome Measure	Intervention	Control	P Value
Møller et al., 2002 (12)	Overall complications	10 (18%)	27 (52%)	0.0003
	Wound complications	3 (5%)	16 (31%)	0.001
	Second operation	2 (4%)	8 (15%)	0.07
	Cardiovascular insufficiency	0	5 (10%)	0.08
	Respiratory insufficiency	1 (2%)	1 (2%)	0.97
	Nonorthopedic hospital days	2/752 (0.3%)	49/816 (6%)	0.0001
Berg et al., 1997 (13)	Postoperative O ₂ > 3 L/min	23 (10%)	4.8 (6%)	Pancuronium vs. atracurium, 0.047; pancuronium vs. vecuronium, 0.16
	PPC: pneumonia or atelectasis	19 (8%)	14 (6.1%)	Difference NS; P not given
	Patients with PPC and train-of-four ratio < 0.70	10/59 (17%)	1/24 (4.2%) atracurium or vecuronium	<0.002, but this P value is for comparison of pancuronium with and without train-of-four < 0.70, not a comparison of pancuronium vs. vecuronium or atracurium
	Median end of surgery to extubation (5th–95th percentile)	15 min (0–40 min)	11 min (2–27 min); 10 min (0–25 min)	<0.05
	Median duration of anesthesia (5th–95th percentile)	160 min (75–290 min)	150 min (70–265 min); 152 min (70–280 min)	<0.05
	Postoperative train-of-four ratio < 0.70	59 (26%)	13 (6%); 11 (5%)	<0.001
Norris et al., 2001 (14)	Length of stay	1) 7 d; 2) 7 d	3) 8 d; 4) 7 d	0.83
	Hours to extubation	1) 19 h; 2) 16 h	3) 19 h; 4) 13 h	0.01
	Hospital mortality	1) 2 (5%); 2) 2 (5%)	3) 3 (7%); 4) 2 (4%)	0.96
	Cardiac mortality	1) 0; 2) 1 (2.8%)	3) 0; 4) 0	0.47
	12-mo mortality	1) 4 (10%); 2) 2 (5%)	3) 4 (10%); 4) 2 (4.4%)	0.64
	Reintubation	1) 1/35 (3%); 2) 0/36	3) 1/30 (3%); 4) 1/44 (2%)	0.9
	Prolonged intubation	1) 6/35 (17%); 2) 6/36 (17%)	3) 8/36 (22%); 4) 3/44 (7%)	0.27
	Pneumonia	1) 0/35; 2) 1/36 (3%)	3) 1/36 (3%); 4) 0/44	0.58
Rigg et al., 2002 (15)	30-d mortality	5.2%	4.3%	0.67
	Respiratory failure	23.3%	30.2%	0.02
	Cardiovascular event	25.7%	24.0%	0.61
Park et al., 2001 (16)	Mortality	20 (4%)	17 (3%)	0.74
	Respiratory failure	51 (10%)	71 (14%)	0.06
	Pneumonia	28 (5%)	40 (8%)	0.15
	Major cardiovascular complication	44 (9%)	57 (11%)	0.12
	Subgroup analysis, abdominal aortic surgery			
	Mortality	4/184 (2%)	5/190 (3%)	0.96
	Respiratory failure	26/184 (14%)	53/190 (28%)	<0.01
Pneumonia	8/184 (4%)	19/190 (10%)	0.06	
Major cardiovascular complication	18/184 (10%)	34/190 (18%)	0.03	
Fleron et al., 2003 (17)	Mortality	2 (2%)	7 (6%)	NS; P not given
	Lobar atelectasis	3 (3%)	9 (8%)	NS; P not given
	Pneumonia	5 (5%)	6 (5%)	NS; P not given
	Respiratory failure	7 (7%)	9 (8%)	NS; P not given
	Any pulmonary complication	17 (16%)	26 (23%)	P calculate = 0.32
Mann et al., 2000 (18)	Segmental or lobar atelectasis	7/31 (23%)	6/33 (18%)	0.77
	Moderate pulmonary complication	3/31 (10%)	2/33 (6%)	NS
	Major pulmonary complication	1/31 (3%)	1/33 (3%)	NS
Cuschieri et al., 1985 (19)	Atelectasis	5 (20%)	IM: 10 (40%); IV: 7 (28%)	IM or IV vs. epidural = NS; IM vs. epidural = 0.05 reported; 0.11 calculated from raw data; IV vs. epidural = 0.20; IM vs. epidural = 0.01; IV vs. epidural = NS
	Chest infection	1 (4%)	IM: 6 (24%); IV: 5 (20%)	
	All pulmonary complications	6 (24%)	IM: 16 (64%); IV: 12 (48%)	

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Author, Year (Reference)	Outcome Measure	Intervention	Control	P Value
Karayiannakis et al., 1996 (20)	Hospital stay	2.04 ± 0.62	5.65 ± 1.16	<0.05
	Atelectasis incidence	12/42 (27%)	24/40 (63%)	<0.05
	Atelectasis severity	7 micro, 3 focal, 2 segmental, 0 lobar	14 micro, 7 focal, 3 segmental, 0 lobar	<0.05
	Pneumonia	No pneumonia	No pneumonia	Not applicable
Vignali et al., 2004 (21)	Respiratory tract infection	3/190 (1.8%)	6/194 (3.5%)	0.52
Chumillas et al., 1998 (22)	Clinical pulmonary complications (atelectasis, bronchitis, pneumonia)	3 (7.5%)	8 (20%)	0.11
	Atelectasis on chest radiography	6 (15%)	16 (39%)	0.017
Fagevik Olsén et al., 1997 (23)	Pulmonary complications (Sao ₂ < 92% or 2 of temperature > 38.2 °C, pathologic auscultation, atelectasis, or pneumonia on chest radiography)	10/172 (6%)	52/192 (27%)	<0.001
	Pneumonia	1/172 (0.6%)	13/192 (7%)	<0.05
	Overall pulmonary complications			
	High-risk patients	6/40 (15%)	20/39 (51%)	<0.001
	Low-risk patients	4/132 (3%)	32/153 (21%)	<0.001
	Obese patients	3/36 (8%)	27/48 (56%)	<0.001
Hall et al., 1991 (24)	Clinical features of consolidation or collapse plus temperature > 38 °C and abnormal chest radiograph or sputum culture	IS: 68/471 (16%)	Chest physiotherapy: 68/445 (15%)	0.84
	Abnormal chest radiograph	IS: 96 (22%)	Chest physiotherapy: 96 (22%)	NS
Hall et al., 1996 (25)	Clinical features of consolidation or collapse plus temperature > 38 °C and abnormal chest radiograph or sputum culture	1) Low-risk IS: 6/79 (8%); 3) high-risk IS: 29/152 (19%)	2) Low-risk DBE: 8/76 (11%); 4) high-risk IS + chest physiotherapy: 20/149 (13%)	Low risk: 1 vs. 3 (<i>P</i> = 0.53); high risk: 2 vs. 4 (<i>P</i> = 0.18)
Böhner et al., 2002 (26)	Pao ₂ < 70 mm Hg with FiO ₂ ≥ 0.7	5 (5.1%)	17 (16.2%)	0.012
		2 (2%)	5 (4.8%)	0.45
	Reintubation	1 (1%)	5 (4.8%)	0.21
VA TPN Cooperative Study Group, 1991 (27)	Pneumonia or empyema	16 (8%)	9 (4%)	0.15
	Respiratory failure > 4 d	13 (7%)	11 (5%)	0.67
	Atelectasis	6 (3%)	8 (4%)	0.79
	Transient respiratory failure	6 (3%)	6 (3%)	1.0
Pacelli et al., 2001 (28)	Major postoperative complication	45 (38%)	48 (39%)	0.89
	Death	7 (6%)	3 (2.5%)	0.21
	Major infectious complication	17 (14%)	14 (11%)	0.57
	Major noninfectious complication	28 (24%)	27 (9%)	0.88
	Pneumonia	10 (8%)	5 (4%)	0.19
	Respiratory failure	6 (5%)	4 (3%)	0.54
	Pneumonia + respiratory failure	16 (13%)	9 (7%)	0.14
	Minor infection	23 (19%)	23 (19%)	1.0
Bozzetti et al., 2001 (29)	Overall complications	54 (34%)	78 (49%)	0.005
	Minor complications	40 (25%)	57 (36%)	0.035
	Major complications	14 (9%)	21 (13%)	0.207
	Infectious complications	25 (16%)	42 (27%)	0.018
	Noninfectious complications	42 (26%)	57 (36%)	0.064
	Respiratory tract infection	9 (6%)	14 (9%)	0.39
	Respiratory failure	4 (3%)	6 (4%)	0.75
	Respiratory infection + failure	13 (8%)	20 (13%)	0.27

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Appendix Table 4—Continued

Author, Year (Reference)	Outcomes			
	Outcome Measure	Intervention	Control	P Value
Gianotti et al., 2002 (30)	Death	1) 1 (1%); 2) 2 (2%)	3) 1 (1%)	NS
	Infectious complications	1) 14 (14%); 2) 16 (16%)	3) 31 (30%)	1 vs. 3 = 0.006; 2 vs. 3 = 0.02
	Noninfectious complications	1) 30 (29%); 2) 28 (28%)	3) 36 (35%)	NS
	Any complication	1) 36 (35%); 2) 34 (34%)	3) 49 (48%)	NS
	Respiratory tract infection	1) 3 (3%); 2) 6 (6%)	3) 8 (8%)	1 vs. 3 = 0.21; 2 vs. 3 = 0.78
	Respiratory failure	1) 6 (6%); 2) 9 (9%)	3) 6 (6%)	1 vs. 3 = 1.0; 2 vs. 3 = 0.59
	Respiratory infection or failure	1) 9 (9%); 2) 15 (15%)	3) 14 (14%)	1 vs. 3 = 0.38; 2 vs. 3 = 1.0
Sandham et al., 2003 (31)	In-hospital mortality	78 (7.8%)	77 (7.7%)	0.93
	Pneumonia	63 (6.6%)	70 (7.3%)	0.70

* DBE = deep breathing exercise; FiO_2 = fraction of inspired oxygen; IM = intramuscular; IV = intravenous; NS = not significant; PPC = postoperative pulmonary complication; SaO_2 = arterial oxygen saturation; VA TPN = Veterans Affairs Total Parenteral Nutrition.