

Appendix Table 2. Abstracted Data for Eligible Randomized Trials, Continued\*

Author, Year (Reference)	Sampling Strategy	Comorbid Conditions	Important Baseline Differences?	Important Intraoperative Differences?	Anesthesia	Follow-up	Important Differences in Co-Interventions Relevant for Pulmonary Complications?	Crossovers	Participant Accrual	Participant Attrition
Møller et al., 2002 (12)	Consecutive	Chronic heart disease, chronic obstructive lung disease, diabetes	No	None regarding percentage of patients receiving general anesthesia, duration of surgery, or number of hip or knee operations	General or regional	Hospital stay	No	No	166 eligible, 46 declined, 120 randomly assigned	4 (intervention) and 8 (control): operation delayed or canceled
Berg et al., 1997 (13)	No data	Smoking status, pulmonary disease	No; trends toward more smokers, droperidol, and inhaled anesthetic in the pancuronium group	Significantly more anesthetic minutes, residual neuromuscular block and minutes to extubation with pancuronium compared with vecuronium or atracurium	General	Postoperative day 6	No	No	No data other than 693 patients eligible and enrolled	2 protocol violations
Norris et al., 2001 (14)	Consecutive?	Diabetes, hypertension, renal insufficiency, cardiovascular and peripheral vascular disease, smoking	No	General anesthesia associated with significantly less operation and cross-clamping time compared with general + regional anesthesia		Postoperative day 7 and 1, 3, 6, and 12 mo for mortality	No	No	309 evaluated, 62 ineligible, 48 declined, 24 "administrative exclusions," 176 consented, 7 not randomly assigned due to failed epidural, 8 randomly assigned to pilot study, 160 randomly assigned to reported study	None
Rigg et al., 2002 (15)	Consecutive?	Morbid obesity, diabetes, chronic renal failure, cardiac failure, respiratory insufficiency, acute myocardial infarction, exertional angina, myocardial ischemia, severe liver disease	No	No data		30 d for mortality, complications; hospital stay?	No data	Unclear how analgesia was handled for 222 patients assigned to epidural but not fully adherent to protocol	920 randomly assigned, 32 excluded after randomization	32 excluded after randomization: 5 entered in study for second operation and 27 ineligible or canceled surgery
Park et al., 2001 (16)	Consecutive?	ASA class II or III, Goldman cardiac risk index, previous angina, myocardial infarction, congestive heart failure, hypertension, chronic obstructive lung disease, diabetes, renal failure, cerebrovascular accident, current smoking, history of alcoholism, alcoholic liver disease	No	No differences in operation severity or duration		30 d	Groups received similar antibiotic prophylaxis, bowel preparation, and intraoperative monitoring	Control to intervention: 48 patients; intervention to control: 32 patients	2731 screened, 1360 excluded, 350 declined, 1021 randomly assigned	26 surgeries canceled, 11 withdrawals
Fleron et al., 2003 (17)	Consecutive	Coronary artery disease, hypertension, congestive heart failure, chronic obstructive lung disease, diabetes	No	No		30 d	No	Lumbar puncture could not be done in 3 patients in epidural group: They were switched to the control group for analysis	"217 patients who met all inclusion criteria were randomized"	
Mann et al., 2000 (18)	Consecutive?	Coronary artery disease, diabetes, hypertension, chronic obstructive lung disease, depression	No	Patients randomly assigned to epidural had significantly less sufentanil and isoflurane, significantly more ephedrine, and significantly longer time to extubation		Clinical: daily through postoperative day 7; chest radiography: postoperative days 1, 3, 5	No	No data	108 evaluated, 4 declined, 34 ineligible, 70 randomly assigned	4 patients: no surgical resection; 2 patients: declined to use patient-controlled anesthesia

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Cuschieri et al., 1985 (19)	Consecutive?	Weight, smoking, respiratory disease	No	No for duration of anesthesia, trend toward more intraoperative opioids and longer time to first dose of postoperative analgesia in IM morphine group		Postoperative day 3	No data	4 failed epidural catheter placement and received IM morphine	"75 patients were included in the study, 25 in each group"	None
Karayiannakis et al., 1996 (20)	Consecutive	None reported	No for age, sex, weight, height, or other baseline data reported	No for operation and anesthesia time but trend toward shorter operation time (97 min ± 19 min vs. 108 min ± 23 min) and anesthesia time (116 min ± 15 min vs. 139 min ± 18 min) with LC	General	Hospital stay	No	3 randomly assigned to LC required conversion to open operation and were excluded from analysis	147 eligible, 49 declined, 98 randomly assigned	7 (2 LCs, 5 OCs) declined after randomization; 2 LCs excluded due to incomplete pulmonary tests; 3 LCs excluded due to conversion to OC; 4 OCs excluded due to common bile duct exploration
Vignali et al., 2004 (21)	Consecutive	ASA class, weight loss > 10%, cancer	Patients having OCR were older than those having LCR (62 y ± 13.4 y vs. 66 y ± 12.2 y; P = 0.02); no differences for other reported comorbid conditions	No for intraoperative transfusion amount, tumor stage, or reason for operation; LCR was associated with longer operation time (221 min ± 69 min vs. 178 min ± 68 min; P = 0.0001), less intraoperative blood loss (177 mL ± 200 mL vs. 264 mL ± 292 mL; P = 0.01), less frequent transfusion (17% vs. 42%; P = 0.0001).	General + thoracic epidural	30 d after discharge with weekly office visits	No	10 randomly assigned to LCR required conversion to OCR	384 randomly assigned	None
Chumillas et al., 1998 (22)	Consecutive	No data	No data except "no significant differences in sample characteristics or risk factors of both groups, including preoperative chest x-ray, with the exception of sex distribution"	No data except "no significant differences in average operation duration or types of incision"	General	Postoperative day 6	No	No data	115 randomly assigned, 34 excluded (emergency operation, extrapulmonary complications, infraumbilical extension of incision, patient cooperation with intervention), 81 "evaluable patients"	
Fagevik Olsen et al., 1997 (23)	Consecutive	Overweight smokers with high-risk ASA class	"No significant differences in background variables"	No significant difference in distribution of operation types but trend toward more upper abdominal operations in control group (30% vs. 39%)	General	Hospital stay	No data	No data	368 randomly assigned	4 noncompletions: 2 control, 2 treatment
Hall et al., 1991 (24)	Consecutive	Preoperative hospital stay > 3 d, current smoker, chronic bronchitis, abnormal chest radiograph, Po <sub>2</sub> < 80 mm Hg, ASA class	No	No for anesthesia time, distribution among 12 surgeons, intraperitoneal infection, type of incision, postoperative nasogastric decompression	Unclear, presumably all general	Hospital stay	No data	No data	1032 screened; 156 excluded (5 <14 y of age, 3 retardation, 8 language, 14 declined, 25 preoperative pulmonary complication, 101 insufficient time to consent); 876 randomly assigned	35 randomly assigned patients did not have surgery: 21 IS, 14 chest physiotherapy
Hall et al., 1996 (25)	Consecutive	ASA class, cancer, current smoker, chronic bronchitis	No	No for operation time, procedure type, intraperitoneal infection, incision type or length, reoperation, nasogastric decompression, epidural analgesia	No data, presumably all general, some with additional epidural anesthesia	Hospital stay	No data	No data	619 screened; 143 excluded (13 language, 14 declined, 15 preoperative pulmonary complication, 115 lack of consent); 476 randomly assigned	20 randomly assigned patients did not have surgery

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Böhner et al., 2002 (26)	Consecutive	Smoking, coronary heart disease, pulmonary disease, ASA class	No	No for duration of surgery, blood loss, crystalloid, transfusion, autotransfusion, hypotension, hypertension, oxygenation	No data, presumably general	Hospital stay	No	9 patients did not tolerate nasal CPAP	237 randomly assigned	33 excluded after randomization for ineligible surgery or patient could not be extubated in operating room: 17 nasal CPAP, 16 control
VA TPN Cooperative Study Group, 1991 (27)	Consecutive	Surgical diagnosis, nutritional status, percentage of usual body weight, serum albumin level, serum prealbumin level, triceps skinfold, nutrition risk index score, subjective global assessment	No differences except lower serum albumin level ( $3.65 \pm 3.6$ mg/dL vs. $3.71 \pm 3.7$ mg/dL; $P = 0.06$ †) and nutritional risk index score ( $92.3 \pm 6.4$ vs. $93.8 \pm 6.0$ ; $P = 0.01$ ), more severe malnutrition (15% vs. 9%; $P = 0.03$ ) in TPN group	No data	No data, presumably general	30 d after surgery	No data	Of 192 randomly assigned to TPN: 130 received optimal TPN, 49 received suboptimal TPN, and 13 received no TPN; of 203 randomly assigned to control, 3 received TPN	3259 screened, 811 excluded, 1497 did not meet nutrition criteria, 169 no surgery, 323 declined, 459 randomly assigned	Of 459 randomly assigned, 64 did not have surgery ( $n = 395$ study patients)
Pacelli et al., 2001 (28)	Consecutive	Weight, percentage of usual weight, serum albumin level, type of cancer, benign gastrointestinal disease	"Similar" for demographic characteristics, nutritional status, and surgical diagnosis	No for type of surgery, blood loss, intraoperative contamination	No data, presumably general	Hospital stay	All received heparin subcutaneously for prophylaxis and antibiotic prophylaxis	14 patients receiving TEN converted to TPN	241 randomly assigned	None
Bozzetti et al., 2001 (29)	Consecutive	Hypertension; heart valve disease; diabetes; arrhythmia; atherosclerotic disease (cardiac or peripheral); respiratory, liver, and central nervous system disease; neoadjuvant therapy	No	No for site of primary tumor, type of surgery, intraoperative contamination, duration of surgery, blood loss, transfusion	No data, presumably general	Hospital stay	No data	14 patients receiving TEN converted to TPN: 5 tube problems, 3 diarrhea, 5 anastomotic leak or bleeding, 1 intestinal obstruction	411 screened, 317 randomly assigned	None
Gianotti et al., 2002 (30)	Consecutive	Hypertension; heart valve disease; diabetes; arrhythmia, atherosclerotic disease (cardiac or peripheral); respiratory, liver, and central nervous system disease; neoadjuvant therapy	No	No for type of surgery, blood loss, or transfusion	No data, presumably general	30 d after discharge	No data except similar bowel preparation in all groups	No data	517 screened, 212 ineligible, 305 randomly assigned	None
Sandham et al., 2003 (31)	Consecutive	History of angina, myocardial infarction, congestive heart failure, NYHA class, ASA risk class	No	No for type of surgery or percentage of urgent cases	No data	Hospital stay, 12 mo for mortality	No	Intervention: 58 did not receive planned therapy, 5 withdrew consent, 5 pulmonary artery catheter failed; control: 52 did not receive planned therapy, 24 crossed over to use of pulmonary artery catheter	3803 screened, 1074 declined, 370 no ICU bed, 365 physicians did not refer to study, 1994 randomly assigned	Hospital stay, none

\* ASA = American Society of Anesthesiologists; CPAP = continuous positive airway pressure; ICU = intensive care unit; IM = intramuscular; IS = incentive spirometry; LC = laparoscopic cholecystectomy; LCR = laparoscopic colorectal resection; NYHA = New York Heart Association; OC = open cholecystectomy; OCR = open colorectal resection; TEN = total enteral nutrition; TPN = total parenteral nutrition; VA TPN = Veterans Affairs Total Parenteral Nutrition.

† To convert serum albumin values to g/L, multiply by 10.