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Energy Sources for Laparoscopic Colorectal Surgery: Is One Better than the Others?

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Table 1. Conventional electrosurgery vs. ultrasonic coagulating shears: outcome of randomized controlled trials

Reference, year	Number of patients	Operative time (min)	Blood loss (ml)	Conversion to open surgery (%)	Conversion to other instruments (%)	Postoperative morbidity (%)	Hospital stay (days)	Costs (€)
Targarona et al. [16], 2005	11 ES 12 US	180 (90-210) 120 (65-220) ‡	200 (0-350) 100 (0-150) ‡	1 (9.1%) 0 (0%)	3 (27.3%) 0 (0%)†	4 (36.4%) 2 (16.7%)	7 (6-32) 8 (4-18)	2995 (2023-5534) 2928 (2273-3534)
Hubner et al. [17], 2008	20 ES 20 US	144.8±43.4 98.5±33.6 Φ	138.5±115.1 92.5±129.3 Φ	0 (0%) 0 (0%)	6 (30%) 5 (25%)	10 (50%) 6 (30%)	9.7±5.8 8.1±5.1	1476±399.1 1213±259.1‡
Morino et al. [18], 2005	72 ES 74 US	102.6±27.3 93.0±29.7	182.6±66.5 140.8±60.6 ‡	8 (11.1%) 9 (12.2%)	15 (20.8%) 0 (0%) ‡	5 (6.9%) 5 (6.7%)	8.9±1.4 8.5±1.2	NR NR

Data are shown as mean ± standard deviation or as median (range).

Abbreviations: ES, electrosurgery; US, ultrasonic coagulating shear; NR, data not reported.

‡ p<0.05

† p=0.09

Φ p<0.001

Table 2. Conventional electrosurgery vs. electrothermal bipolar vessel sealers : outcome randomized controlled trials.

Reference, year	Number of patients	Operative time (min)	Blood loss (ml)	Conversion to open surgery (%)	Conversion to other instruments (%)	Postoperative morbidity (%)	Hospital stay (days)	Costs (€)
Targarona et al. [16], 2005	11 ES	180 (90-120)	200 (0-350)	1 (9.1%)	3 (27.3%)	4 (36.4%)	7 (6-32)	2995 (2023-5534)
	15 EBVS	110 (70-210) ‡	100 (0-450)	1 (6.7%)	1 (6.7%)	2 (13.3%)	6 (6-16)	2664 (2320-3635)
Hubner et al. [17], 2008	20 ES	144.8±43.4	138.5±115.1	0 (0%)	6 (30%)	10 (50%)	9.7±5.8	1476±399.1
	21 EBVS	104.7±31.8 Φ	108.6±139.1	0 (0%)	3 (14.3%)	10 (47.6%)	9.2±6.7	1209±265.8‡

Data are shown as mean ± standard deviation or as median (range).

Abbreviations: US, ultrasonic coagulating shear; EBVS, electro-thermal bipolar vessel sealer; NR, data not reported.

‡ p<0.05

Φ p<0.001

Table 3. Ultrasonic coagulating shears vs. electrothermal bipolar vessel sealers : outcome of randomized controlled trials.

Reference, year	Number of patients	Operative time (min)	Blood loss (ml)	Conversion to open surgery (%)	Conversion to other instruments (%)	Postoperative morbidity (%)	Hospital stay (days)	Costs (€)
Targarona et al. [16], 2005	12 US	120 (65-220)	100 (0-150)	0 (0%)	0 (0%)	2 (16.7%)	8 (4-18)	2928 (2273-3534)
	15 EBVS	110 (70-210)	100 (0-450)	1 (6.7%)	1 (6.7%)	2 (13.3%)	6 (6-16)	2664 (2320-3635)
Hubner et al. [17], 2008	20 US	98.5±33.6	92.5±129.3	0 (0%)	5 (25%)	6 (30%)	8.1±5.1	1213±259.1
	21 EBVS	104.7±31.8	108.6±139.1	0 (0%)	3 (14.3%)	10 (47.6%)	9.2±6.7	1209±265.8
Rimonda et al. [19], 2005	70 US	114.8±47.6	107.9±42.0	6 (8.6%)	1 (1.4%)	8 (11.4%)	7.4±2.2	NR
	70 EBVS	116.3±44.0	111.2±51.5	5 (7.1%)	0 (0%)	7 (10.0%)	6.9±3.3	NR

Data are shown as mean ± standard deviation or as median (range).

Abbreviations: US, ultrasonic coagulating shear; EBVS, electro-thermal bipolar vessel sealer; NR, data not reported.