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P1.113: Perioperative Complications After Neoadjuvant Chemo-Immunotherapy for NSCLC: A Multicenter Study of Open, VATS, and RATS

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INTRODUCTION

Neoadjuvant chemo-immunotherapy has been increasingly used in non-small cell lung cancer (NSCLC) treatment, showing improved outcomes compared to chemotherapy. It induces strong immune responses potentially leading to fibrosis and adhesions complicating the surgery. In these settings, the optimal surgical approach remains unclear.

METHODS

Design

Multicenter retrospective study involving 11 referral centers (preliminary results).

Population (2016-2025)

- Clinical stage II-III NSCLC (8th edition)
- Neoadjuvant chemo-immunotherapy or immunotherapy
- Surgery with radical intent

Primary outcome

Perioperative complications (Clavien-Dindo) among Open, VATS, and RATS.

Secondary outcomes

Quality of lymphadenectomy, operative time, conversion rate and radicality.

Statistical analysis

Between-group comparisons, logistic regression analyses to identify independent predictors of perioperative complications.

194 patients • 11 centers • 2016-2025

Open

93

47.9%

VATS

58

29.9%

RATS

43

22.2%

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Minimally invasive surgery after neoadjuvant chemo-immunotherapy is safe and it is associated with favorable perioperative outcomes compared to open surgery.
- VATS demonstrated to be protective compared to thoracotomy in terms of perioperative complications, although with lower radicality rate.
- Robotic surgery showed a comparable but non-significant reduction in complications, with more extensive lymphadenectomy and lower conversion rates.

Future Direction for Research

- Long-term oncological outcomes and propensity-matched analyses are needed to better define the best indications for open, VATS and RATS in this setting.

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Artificial Intelligence (AI) Use Disclaimer

An AI assistant (Claude, Anthropic) was used only to support layout and language editing of this poster. All data, analyses, figures and scientific content were produced and verified by the Authors.

RESULTS

Variable	Overall	Open	VATS	RATS	p-value
Male vs Female	109 (56.19%)	52 (55.91%)	31 (53.45%)	26 (60.47%)	0.78
Age at surgery	68 (60-72)	68 (61-72)	68 (60-73)	68 (58-71)	0.85
BMI	25.39 (22.53-28.40)	24.95 (21.95-27.78)	25.51 (23.20-29.00)	26.30 (24.00-28.55)	0.10
ASA	I 33 (17.01%) II 77 (39.69%) III 80 (41.24%) IV 4 (2.06%)	I 22 (23.66%) II 32 (34.41%) III 38 (40.86%) IV 1 (1.08%)	I 9 (15.52%) II 25 (43.10%) III 23 (39.66%) IV 1 (1.72%)	I 2 (4.65%) II 20 (46.51%) III 19 (44.19%) IV 3 (6.65%)	0.14
Smoking history	Never 14 (7.22%) Past 105 (54.12%) Current 75 (38.66%)	Never 9 (9.68%) Past 41 (44.09%) Current 43 (46.24%)	Never 2 (3.45%) Past 38 (65.52%) Current 18 (31.03%)	Never 1 (2.33%) Past 26 (60.47%) Current 14 (32.56%)	0.09
Hypertension	93 (47.94%)	45 (48.39%)	29 (50.00%)	19 (44.19%)	0.84
Arrhythmia	10 (5.15%)	5 (5.38%)	4 (6.90%)	1 (2.33%)	0.59
CAD	23 (11.86%)	15 (16.13%)	5 (8.62%)	3 (6.98%)	0.20
COPD	51 (26.29%)	26 (27.96%)	14 (24.14%)	11 (25.58%)	0.87
Diabetes Mellitus	28 (14.43%)	18 (19.35%)	3 (5.17%)	7 (16.28%)	0.05
CKD	3 (1.55%)	1 (1.08%)	2 (3.45%)	0 (0.00%)	0.34
FEV1 (%)	93 (77-102)	92 (76-101)	92 (78-103)	95 (80-103)	0.51
cStage	IIA 1 (0.52%) IIB 21 (10.82%) IIIA 105 (54.12%) IIIB 67 (34.54%) 0 9 (4.66%)	IIA 0 (0.00%) IIB 9 (9.68%) IIIA 50 (53.76%) IIIB 34 (36.56%) 0 1 (1.08%)	IIA 1 (1.72%) IIB 7 (12.07%) IIIA 30 (51.72%) IIIB 20 (34.48%) 0 0 (0.00%)	IIA 0 (0.00%) IIB 5 (11.63%) IIIA 25 (58.14%) IIIB 13 (30.23%) 0 0 (0.00%)	0.80
ycStage	IA1 5 (2.59%) IA2 9 (4.66%) IA3 18 (9.33%) IB 18 (9.33%) IIB 16 (8.29%) IIIB 41 (21.24%) IIIA 58 (30.05%) IIIB 19 (9.84%)	IA1 3 (3.23%) IA2 2 (2.15%) IA3 10 (10.75%) IB 6 (6.45%) IIB 9 (9.68%) IIIB 20 (21.51%) IIIA 26 (27.96%) IIIB 9 (9.68%)	IA1 0 (0.00%) IA2 2 (3.51%) IA3 7 (12.28%) IB 9 (15.79%) IIB 4 (7.02%) IIIB 10 (17.54%) IIIA 18 (31.58%) IIIB 6 (10.53%)	IA1 2 (4.65%) IA2 5 (11.63%) IA3 1 (2.33%) IB 3 (6.98%) IIB 3 (6.98%) IIIB 11 (25.58%) IIIA 14 (32.56%) IIIB 4 (9.30%)	0.13
PD-L1 (%)	10 (0.55%)	10 (0.60%)	0 (0.18%)	30 (6.70%)	<0.001
Complications immunotherapy	76 (39.58%)	28 (30.43%)	30 (51.72%)	18 (42.86%)	0.030
Immunotherapy-surgery interval (days)	39 (32-49)	41 (33-50)	36 (31-44)	38 (30-47)	0.11
pCR	65 (34.57%)	28 (32.18%)	23 (39.66%)	14 (32.56%)	0.62
MPR	111 (59.36%)	49 (56.32%)	33 (56.90%)	29 (69.05%)	0.35
Lobectomy	142 (73.20%)	53 (56.99%)	49 (84.48%)	40 (93.02%)	0.000
Bilobectomy	12 (6.19%)	8 (8.60%)	4 (6.90%)	0 (0.00%)	0.000
Pneumonectomy	13 (6.70%)	11 (11.83%)	0 (0.00%)	2 (4.65%)	0.000
Type of resection	Bronchial sleeve resection 10 (5.15%) Arterial sleeve resection 4 (2.06%) Lobectomy+chest wall resection 11 (5.67%) Bronchial+Arterial sleeve resection 1 (0.52%) Bronchial sleeve+chest wall resection 1 (0.52%)	Bronchial sleeve resection 7 (7.53%) Arterial sleeve resection 2 (2.15%) Lobectomy+chest wall resection 10 (10.75%) Bronchial+Arterial sleeve resection 1 (1.08%) Bronchial sleeve+chest wall resection 1 (1.08%)	Bronchial sleeve resection 2 (3.45%) Arterial sleeve resection 2 (3.45%) Lobectomy+chest wall resection 1 (1.72%) Bronchial+Arterial sleeve resection 0 (0.00%) Bronchial sleeve+chest wall resection 0 (0.00%)	Bronchial sleeve resection 1 (2.33%) Arterial sleeve resection 0 (0.00%) Lobectomy+chest wall resection 0 (0.00%) Bronchial+Arterial sleeve resection 0 (0.00%) Bronchial sleeve+chest wall resection 0 (0.00%)	0.004
Radicality	R0 188 (96.91%) R1 4 (2.06%) R2 2 (1.03%)	R0 92 (98.92%) R1 0 (0.00%) R2 1 (1.08%)	R0 54 (93.10%) R1 4 (6.90%) R2 0 (0.00%)	R0 42 (97.67%) R1 0 (0.00%) R2 1 (2.33%)	0.029
Pleural adhesions	80 (41.24%)	42 (45.16%)	23 (39.65%)	15 (34.26%)	0.19
Hilar fibrosis	114 (58.76%)	58 (62.36%)	27 (46.55%)	29 (67.44%)	0.18
Histopathological inflammation	143 (75.26%)	66 (73.33%)	43 (75.44%)	34 (79.07%)	0.40
Direct ICU admission	70 (36.08%)	38 (40.86%)	21 (36.21%)	11 (25.58%)	0.23
Hospitalization (days)	6 (5-10)	7 (6-11)	5 (4-8)	6 (5-9)	<0.001
ADK	124 (63.92%)	56 (60.22%)	36 (62.07%)	32 (74.42%)	0.000
SCC	59 (30.41%)	34 (36.56%)	20 (34.48%)	5 (11.63%)	0.025
ASC	4 (2.06%)	1 (1.08%)	1 (1.72%)	2 (4.65%)	0.025
LCNE	4 (2.06%)	0 (0.00%)	1 (1.72%)	3 (6.98%)	0.025
Other	3 (1.55%)	2 (2.15%)	0 (0.00%)	1 (2.33%)	0.025

Table 1. Variables by surgical approach.

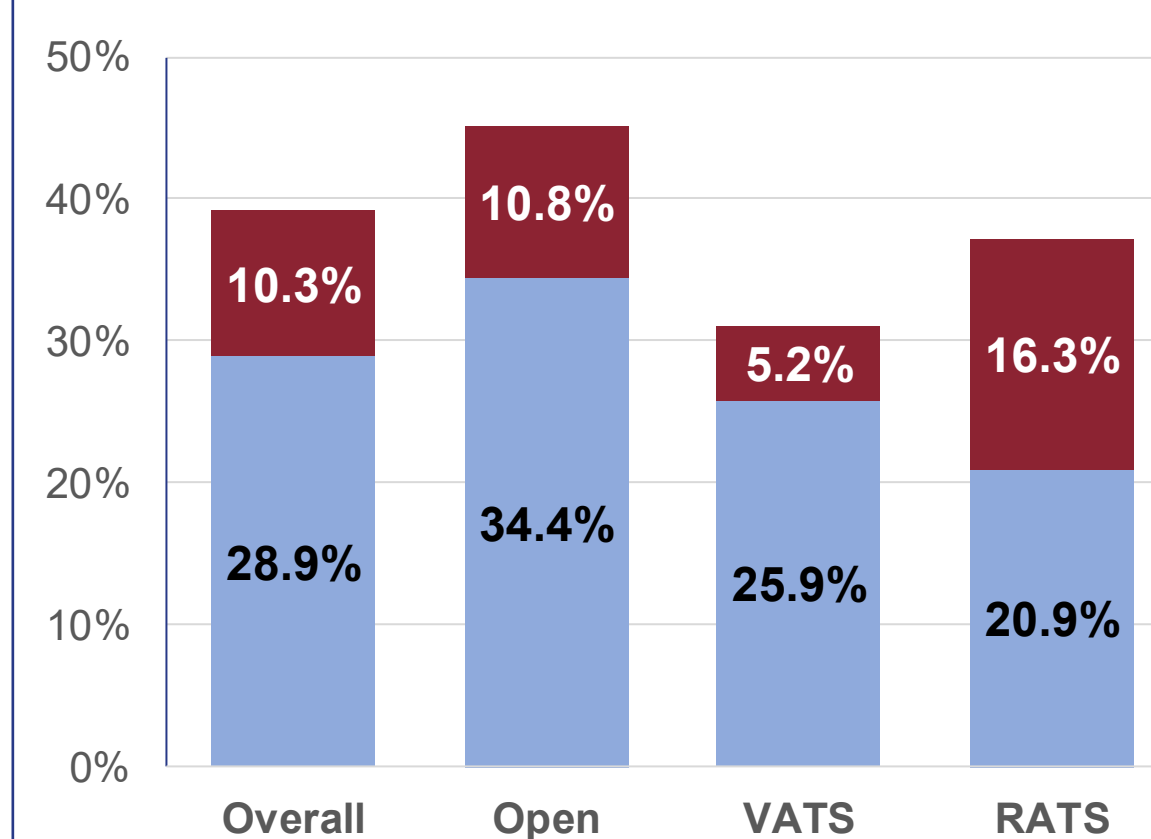


Figure 1. Perioperative complications by severity and surgical approach (p=0.21).

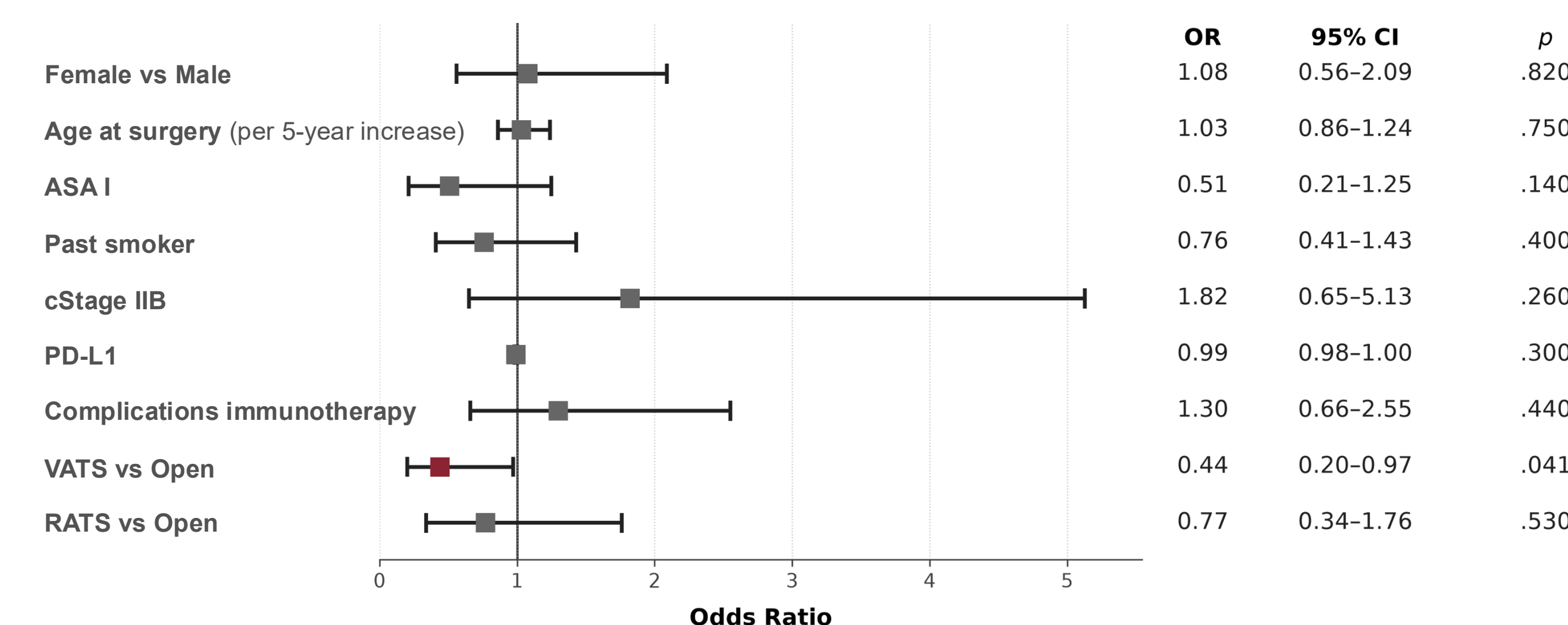


Figure 3. Multivariate predictors of perioperative complications.

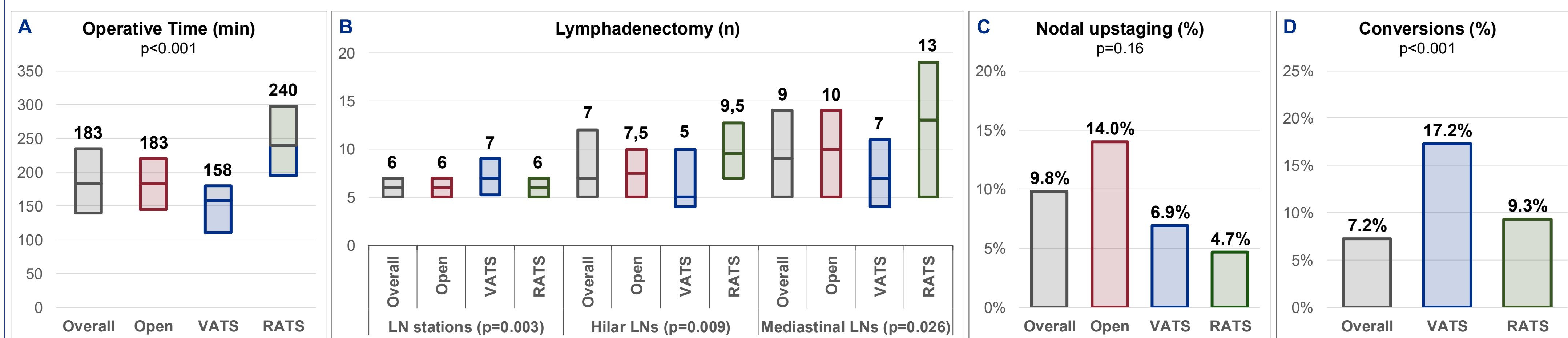


Figure 2. Secondary outcomes by surgical approach. Boxes show median and interquartile range.