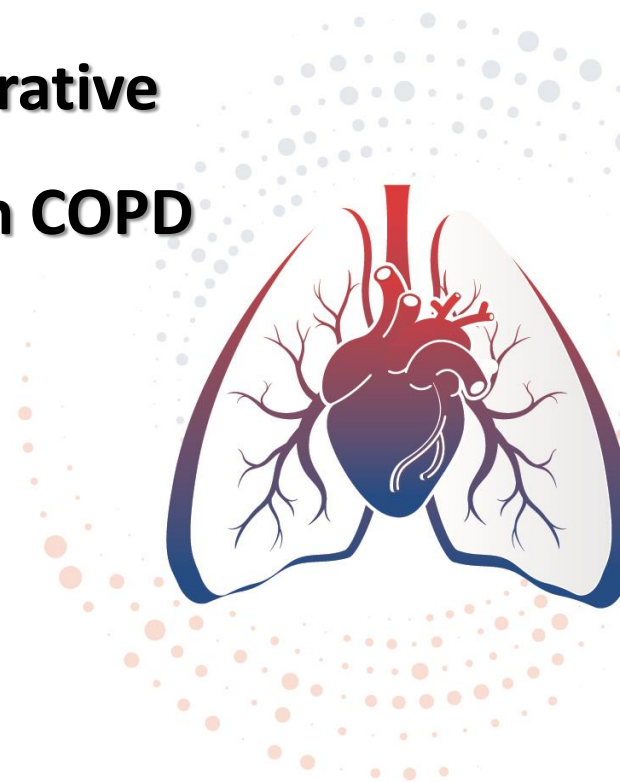


2023 대한심장혈관흉부외과학회

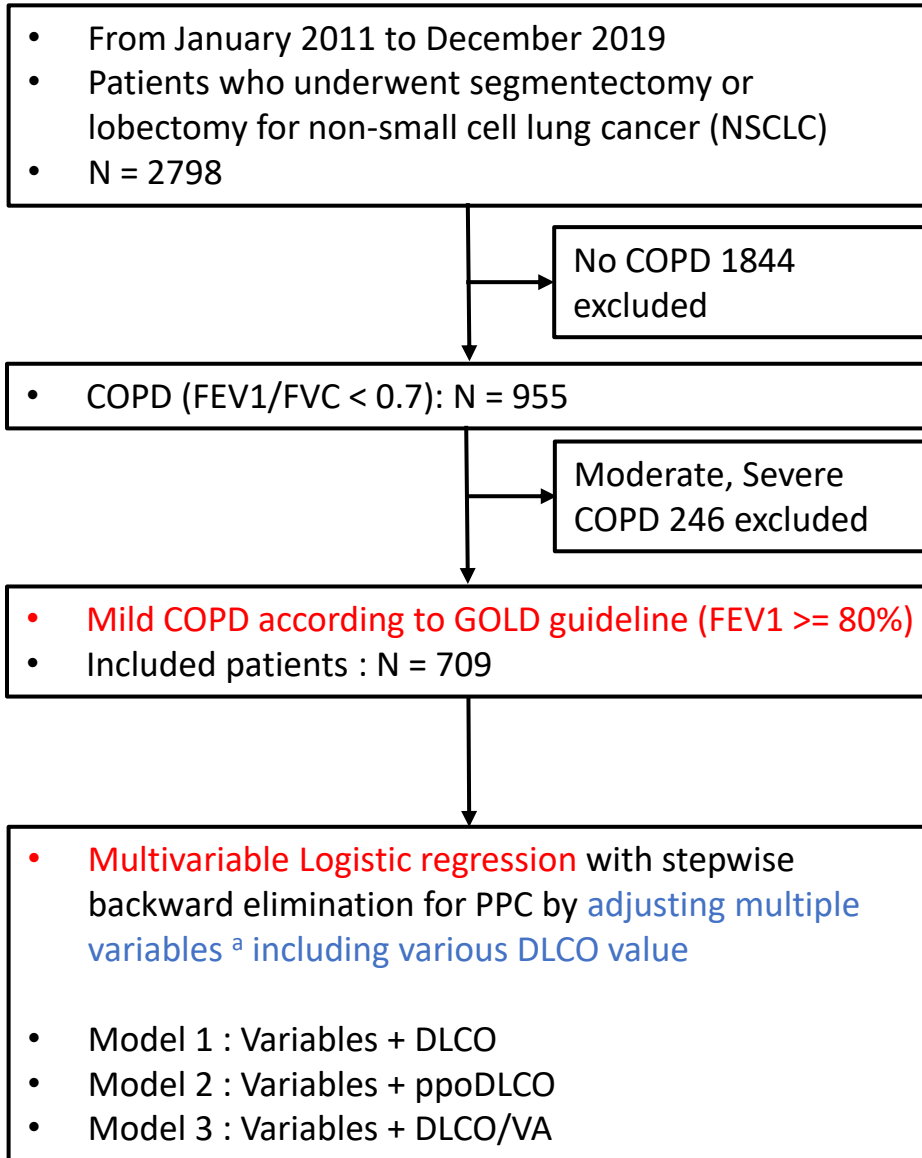
제55차 추계학술대회 & APELSO 2023

2023. 11. 02 (Thu) - 11. 04 (Sat), 그랜드 인터컨티넨탈 파르나스 서울

Different types of DLCO value in predicting postoperative pulmonary complications after lung cancer surgery in COPD patients



- In non-small-cell lung cancer(NSCLC) patients with underlying chronic obstructive pulmonary disease (COPD), who underwent pulmonary resection, Postoperative pulmonary complications(PPC) can lead to fatal outcomes. Pulmonary function test (PFT) value is already well-known preoperative risk factor assessment indicator for postoperative pulmonary complications.
- However, there are borderline COPD patients with preserved FEV1, and it is difficult to assess the risk with a simple PFT in these patients, so a new indicator is needed.
- This study aimed to investigate the predictive role of different types of Diffusing capacity of the lung for Carbon monoxide (DLCO) values in PPC of COPD patients who underwent pulmonary resection of NSCLC.



- Single center, retrospective study
- Definition of terms
 - VA : alveolar volume
 - DLCO/VA : DLCO per VA
 - ppoDLCO : predicted postoperative DLCO
 - PPC : Postoperative pulmonary complication
 - Prolonged air leakage > 5-days, Pneumonia, Atelectasis, Bronchiopleural fistula, and ARDS within 30-days after surgery
- Variables^a
 - Age, Sex, Smoking (never vs ever), ECOG (<2 vs ≥ 2),
 - Neoadjuvant treatment, Tumor size on chest CT, cN (N0 vs N+)
 - Approach (MIS vs open), Extent of surgery

Results

Univariable analysis

	No PPC (N=603)	PPC (N=106)	p
Age, years	69.1 ± 7.6	70.4 ± 9.2	0.164
Male	457 (75.8%)	95 (89.6%)	0.002
Never smokers	155 (25.7%)	16 (15.1%)	0.032
ECOG ≥ 2	91 (15.1%)	15 (14.2%)	0.918
Comorbidities			
DM	127 (21.1%)	24 (22.6%)	0.812
HTN	310 (51.4%)	52 (49.1%)	0.733
Cardiovascular disease	105 (17.4%)	14 (13.2%)	0.354
Neoadjuvant treatment	25 (4.1%)	9 (8.5%)	0.092
DLCO, predicted %	103.6 ± 19.3	100.8 ± 24.2	0.25
DLCO < 80%	548 (90.9%)	86 (81.1%)	0.005
DLCO/VA, predicted %	99.1 ± 18.6	91.5 ± 19.9	<.001
DLCO/VA < 80%	512 (84.9%)	71 (67.0%)	<.001
ppoDLCO, predicted %	82.9 ± 16.6	80.3 ± 19.9	0.198
ppoDLCO < 60%	39 (6.5%)	17 (16.0%)	0.002
Solid portion maximum diameter on chest CT	2.7 ± 1.7	3.0 ± 1.9	0.127
cN positive	70 (11.6%)	12 (11.3%)	0.619
Approach, MIS	557 (92.4%)	86 (81.1%)	<.001
Extent of surgery, lobectomy	559 (92.7%)	97 (91.5%)	0.818

Model 1 : Variables + DLCO AIC 576.93, BIC 608.88

	OR	Lower CI	Upper CI	P value
Sex, female	0.33	0.17	0.64	0.001
ECOG, ≥ 2	0.63	0.33	1.2	0.159
Neoadjuvant treatment, yes	2.67	0.94	7.6	0.065
DLCO%, < 80	2.12	1.16	3.88	0.015
cN positive, yes	0.48	0.2	1.13	0.092
Approach, open	3.02	1.61	5.67	<.001

Model 2 : Variables + ppoDLCO AIC 573.79, BIC 605.74

	OR	Lower CI	Upper CI	P value
Sex, female	0.32	0.16	0.62	<.001
ECOG, ≥ 2	0.61	0.32	1.17	0.139
Neoadjuvant treatment, yes	2.58	0.9	7.4	0.078
ppoDLCO%, $< 60\%$	2.83	1.46	5.48	0.002
cN positive, yes	0.47	0.2	1.12	0.087
Approach, open	3.2	1.7	6.01	<.001

Model 3 : Variables + DLCO/VA AIC 573.55, BIC 600.94

	OR	Lower CI	Upper CI	P value
Sex, female	0.43	0.22	0.84	0.013
Neoadjuvant treatment, yes	2.68	0.94	7.67	0.066
DLCO/VA%, < 80	2.14	1.31	3.48	0.002
cN positive, yes	0.46	0.19	1.1	0.080
Approach, open	2.66	1.46	4.85	0.001

- Different types of DLCO value can predict postoperative pulmonary complications in patients who were diagnosed with mild COPD in preoperative PFT and underwent pulmonary resection of NSCLC.
- Although DLCO% and ppoDLCO% are all well-known predictors of pulmonary complications after elective pulmonary resection, the DLCO/VA% is another important predictor.