Comparison of Surgical Prognosis between Invasive Mucinous and Non-Mucinous Adenocarcinoma in Lung Cancer: A Propensity Score Matched analysis
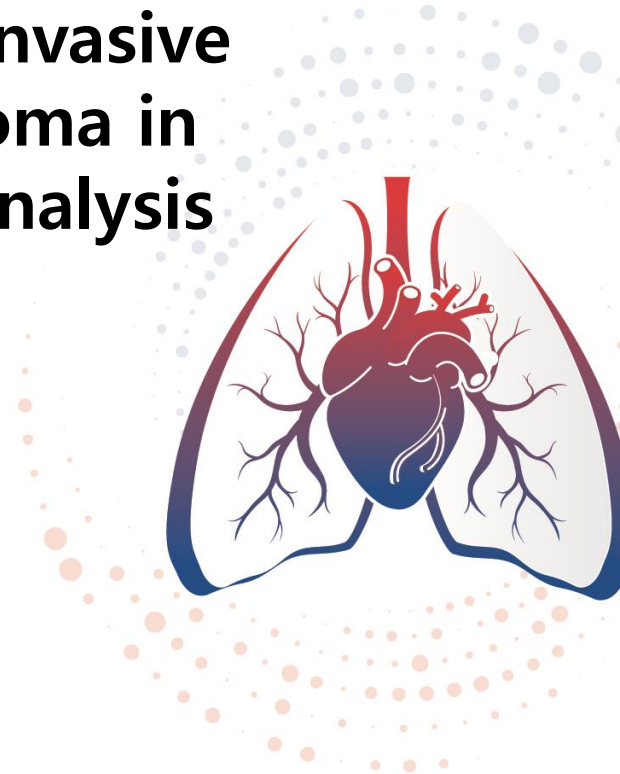
- Invasive mucinous adenocarcinoma (IMA) is a rare variant of adenocarcinoma, accounting for approximately 5% of all pulmonary adenocarcinomas.

- IMA is histologically characterized by goblet cells and high columnar epithelial cell with producing intracyoplasmic mucin.

- The new histologic grading system for invasive non-mucinous adenocarcinoma (INMA) proposed by International Association for the Study of Lung Cancer (IASLC) in 2020 is a practical and efficient discriminator for patients. However, the IMA was not included in 2020 IASLC grading system and clinical course and prognostic outcomes of IMA is still controversial.

- We aim to investigate the prognostic factors of IMA compared to INMA.
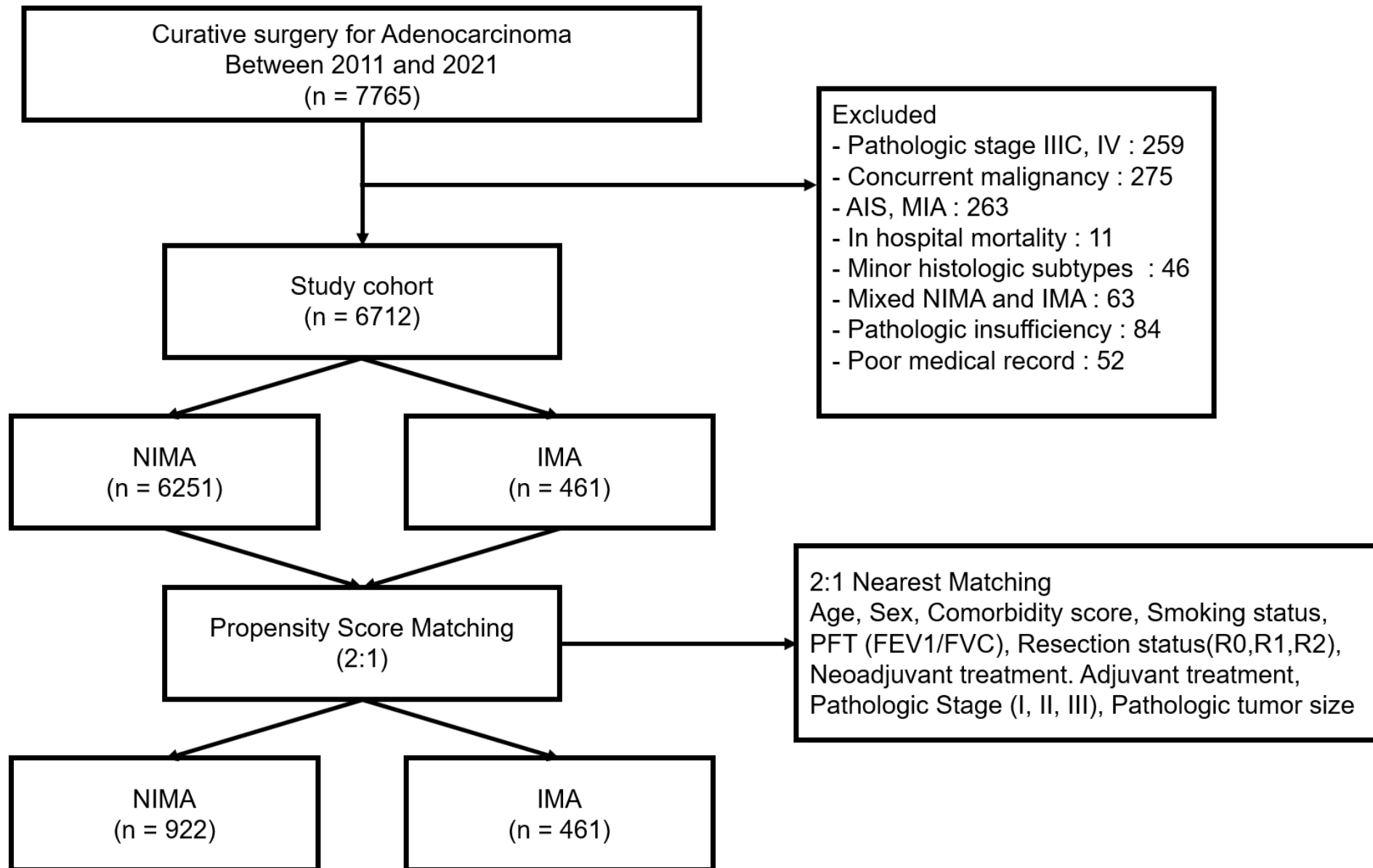
- Fig 1. Overall survival and Recurrence free survival according to the histologic type
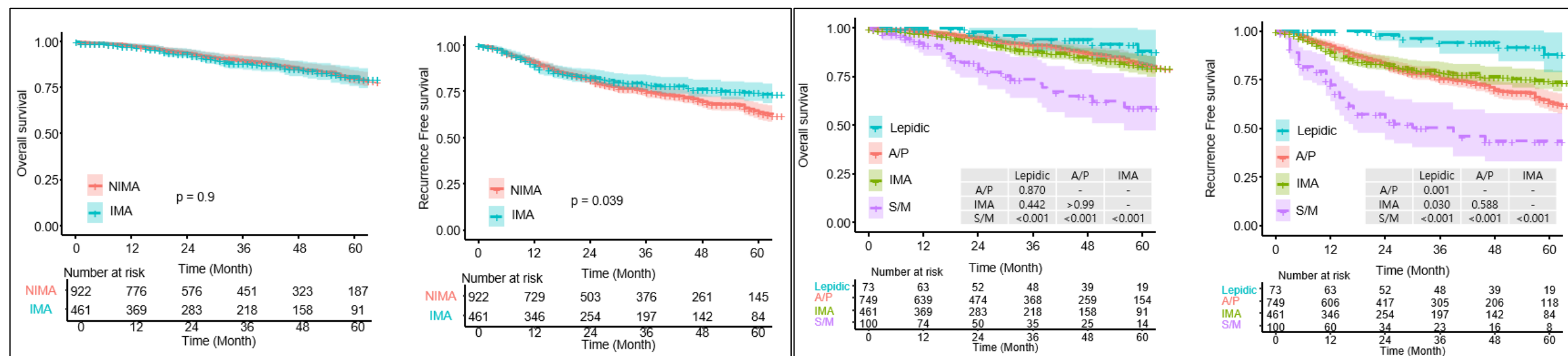
5-Year OS
Lepidic 0.882 (0.731-0.951)
AcinarPapillary 0.818 (0.772-0.855)
IMA 0.809 (0.752-0.854)
SolidMicropa 0.594 (0.446-0.714)

5-RFS
Lepidic 0.882 (0.731-0.951)
IMA 0.748 (0.694-0.794)
AcinarPapillary 0.637 (0.586-0.684)
SolidMicropa 0.435 (0.311-0.552)

- Table 1. Cox proportional hazard regression for OS and RFS in IMA

| | Univariate | | Multivariate | |
	HR (95% CI)	p	HR (95% CI)	p
Overall survival				
Age	1.027 (0.997 - 1.057)	0.075		
Sex (Male)	2.806 (1.655 - 4.759)	0.0001	1.856 (1.073 - 3.21)	0.027
Comorbidity	1.371 (1.09 - 1.723)	0.0069	1.448 (1.145 - 1.832)	0.002
Smoker	2.564 (1.536 - 4.281)	0.0003		
FEV1/FVC (%)	1.001 (0.971 - 1.033)	0.9313		
CT Pattern (Consolidation)	3.525 (2.100 – 5.917)	< .0001	1.602 (0.871 – 2.948)	0.1298
pStage II	3.018 (1.548 - 5.883)	0.0012	2.459 (1.236 - 4.892)	0.0103
pStage III	9.929 (5.411 - 18.217)	< .0001	7.458 (3.576 - 15.556)	< .0001
Extranodal invasion	4.469 (1.391 - 14.356)	0.0119		
Lymphovascular Emboli	2.98 (1.504 - 5.905)	0.0018		

| | Univariate | | Multivariate | |
	HR (95% CI)	p	HR (95% CI)	p
Recurrence free survival				
Age	1.011 (0.988 - 1.034)	0.3701		
Sex (Male)	2.892 (1.885 - 4.438)	< .0001	2.002 (1.283 - 3.125)	0.0022
Comorbidity	1.177 (0.972 - 1.425)	0.0946	1.198 (0.984 - 1.458)	0.0723
Smoker	2.523 (1.663 - 3.827)	< .0001		
FEV1/FVC (%)	1.001 (0.975 - 1.027)	0.968		
CT Pattern (Consolidation)	4.134 (2.706-6.316)	< .0001	1.870 (1.158 – 3.020)	0.0104
pStage II	3.109 (1.789 - 5.402)	< .0001	2.465 (1.397 - 4.349)	0.0019
pStage III	13.921 (8.455 - 22.92)	< .0001	9.042 (5.083 - 16.084)	< .0001
Extranodal invasion	4.793 (1.752 - 13.11)	0.0023		
Lymphovascular Emboli	2.791 (1.599 - 4.872)	0.0003		

Conclusion

- Patients with IMAs have OS rates between high-grade and intermediate-grade INMA and RFS rates similar to intermediate-grade INMA.

- Sex, higher pathologic stage and consolidative CT pattern was the worse prognostic factors of IMA in this study.

- In era of target therapy, because IMA shows different prognosis compared to INMA, the further studies about specific treatment and follow-up plans for IMA should be needed.