Clinicopathological characterization of NGS detected mutations in lung cancers – a single center experience

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Background

Despite many advances in molecular pathological procedures and improved clinical outcomes, in advanced disease but also as adjuvant therapies, many NSCLC patients do not receive full panel testing.

Methods

In this retrospective analysis, we used results from NGS testing of 154 patients with adenocarcinoma (AC) or squamous-cell carcinoma (SCC) treated at LMU university hospital Munich between 2018 and 2021. We compared different clinicopathological features and patients' baseline characteristics with results of NGS testing. We used t-test and ANOVA to compare metric variables and Chi2-test and Fisher's Exact test to compare categorical variables.

frequency of mutations by gender

patients with metastases

patients without metastases

patients with adenocarcinoma

patients with squamous-cell carcinoma
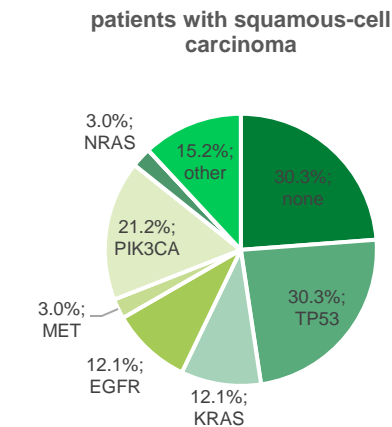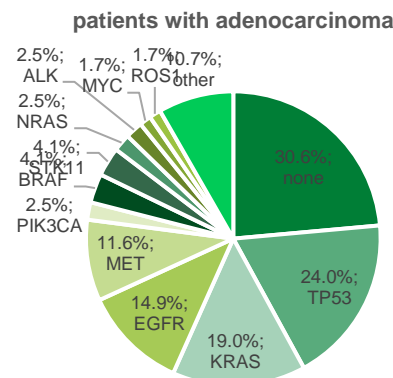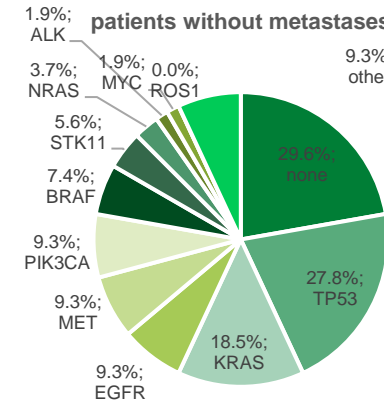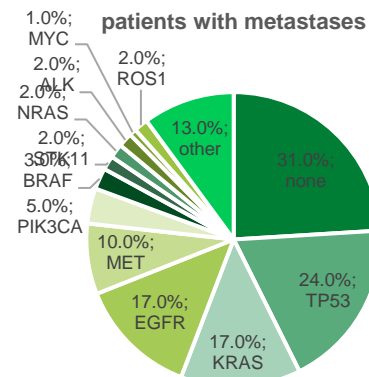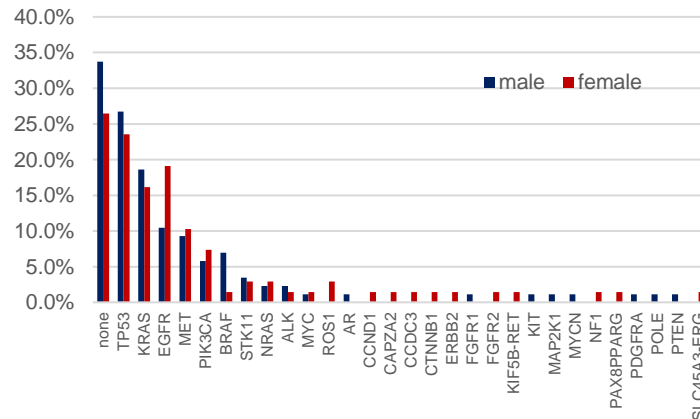
	all patients (n = 154)		with mutation (n = 107)		without mutation (n = 47)		p-value
mean age in years (sd)	62.6	(12.6)	62.4	(13.1)	63.3	(11.4)	0.67
sex							
male n (%)	86	55.8%	57	53.3%	29	61.7%	
female n (%)	68	44.2%	50	46.7%	18	38.3%	0.43
histology							
adenocarcinoma n (%)	121	78.6%	84	78.5%	37	78.7%	
squamous-cell carcinoma n (%)	33	21.4%	23	21.5%	10	21.3%	1.00
metastases at diagnosis							
yes n (%)	100	64.9%	69	64.5%	31	66.0%	
no n (%)	54	35.1%	38	35.5%	16	34.0%	1.00
PD-L1 status							
mean (sd)	31.3	(36.1)	36.8	(37.9)	18.8	(28.4)	0.003
< 1% n (%)	45	29.2%	30	28.0%	15	31.9%	0.72
1 to 50% n (%)	47	30.5%	28	26.2%	19	40.4%	0.09
> 50% n (%)	47	30.5%	39	36.4%	8	17.0%	0.03
missing n (%)	15	9.7%	10	9.3%	5	10.6%	
ECOG							
0 n (%)	70	45.5%	47	43.9%	23	48.9%	0.69
1 n (%)	23	14.9%	16	15.0%	7	14.9%	1.00
2 n (%)	7	4.5%	4	3.7%	3	6.4%	0.44
not available n (%)	54	35.1%	40	37.4%	14	29.8%	

Conclusion

Mutation profiles differed by histological type and metastases status, and were significantly associated with PD-L1 expression. KRAS and EGFR mutations in SCC were more common than previously reported. These results might help identify patients who are more likely to harbor a treatable mutation and can help physicians plan diagnostics especially when tissue material is limited.

The Author has no conflicts of interest to disclose