1356P: Cumulative incidence and baseline imaging patterns of brain metastases in advanced WT, SCC versus EGFR and ALK positive Non-Small Cell Lung Cancer (NSCLC)

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BACKGROUND

- Up to 40% of NSCLC patients develop brain metastases (mets) during the course of their disease.
- We explored the impact of histology and *EGFR / ALK* driver alterations on cumulative incidence (CI) rates of brain mets and the influence of brain imaging patterns.

METHODS

- All stage IV NSCLC patients at diagnosis or after relapse seen at the Princess Margaret Cancer Centre diagnosed between 2014 and 2016 were included
- Clinico-pathologic characteristics, CI of brain mets, frequency of baseline brain mets, and monitoring brain imaging until occurrence of first brain mets were analysed.
- Competing risk models compared CI rates between different mutation subgroups.

RESULTS

Table 1: Patient demographics

Covariate	N=920
Age at dx	
Mean (sd)	67.7 (12)
Sex	
Female	418 (45%)
Male	502 (55%)
Smoking Status	
Current smoker	165 (18%)
Ex-smoker	467 (51%)
Never smoker	261 (28%)
Stage at diagnosis	
Advanced (stage IV)	719 (78%)
Early-stage	201 (22%)
Histology	
Adenocarcinoma (Adeno)	744 (81%)
Squamous cell (SCC)	176 (19%)
Adenocarcinoma EGFR/ALK status	
EGFR+	213 (29%)
ALK+	39 (5%)
EGFR/ALK Wildtype (WT)	436 (59%)
Unknown	56 (8%)

Figure 1: Cumulative incidence of brain metastases from baseline to 5 years since stage IV diagnosis.
*Numbers at baseline, 3-year and 5-year indicate the % of patients with brain metastases at that time for each subgroup.

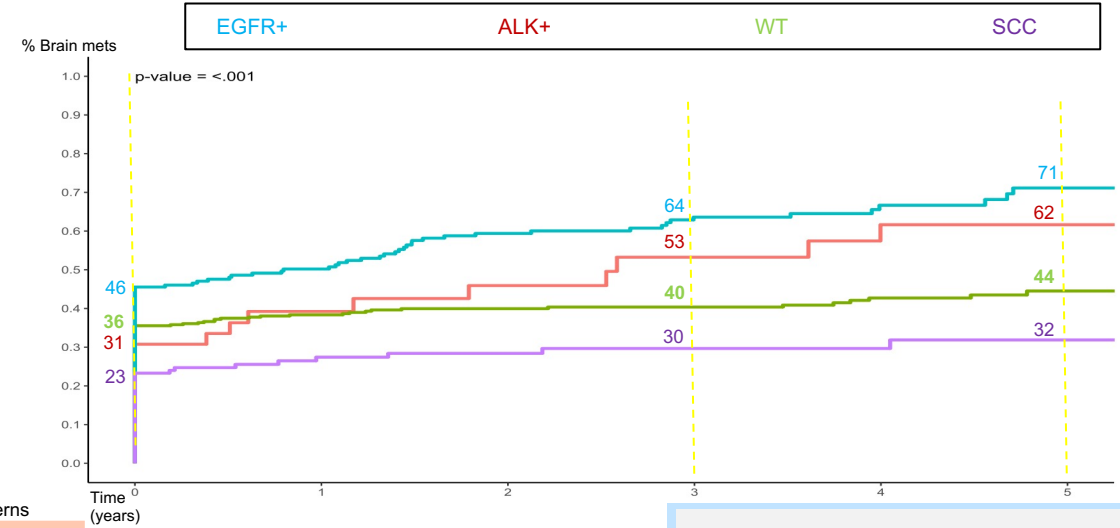

Table 2: Baseline* and Follow-up** imaging patterns

	EGFR+ (n,%)	ALK+ (n,%)	WT (n,%)	SCC (n,%)
Brain imaging at dx	205 (96)	35 (90)	430 (87)	155 (88)
Follow-up brain imaging	91 (43)	16 (41)	103 (24)	25 (14)

*Baseline defined as +/- 60 days from stage IV diagnosis

**Follow-up defined as 61 days to 10 years days from stage IV

Table 3: Imaging (MRIs) completed due to symptoms

	EGFR	ALK+	WT	SCC
MRI(s) ever completed due to symptoms	29 (14%)	7 (18%)	53 (12%)	14 (8%)
Baseline MRI(s) due to symptoms	6 (3%)	2 (5%)	25 (6%)	6 (3%)
Follow-up MRI(s) due to symptoms	23 (11%)	5 (13%)	32 (7%)	9 (5%)

CONCLUSION

- Our real-world data confirm a higher cumulative incidence of brain metastases in ***EGFR+ and ALK+*** adenocarcinoma vs WT and SCC and more frequent brain imaging at baseline and subsequent follow-up period
- Future analyses will further focus on specific imaging patters following brain met identification stratified by mutation status as well as treatment-based outcomes in patients with EGFR+/ALK+ NSCLC and brain metastases.

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