



Characteristics, treatment patterns and outcome of Non-Small Cell Lung Cancer (NSCLC) patients presenting with brain-only metastatic disease

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Background

- In NSCLC patients, presence of brain metastasis (mets) is generally associated with a poor prognosis.
- We compared the survival of patients with brain-only (B) mets to those with brain and systemic disease (BS) and systemic-disease-only (S) cohorts.
- We also analyzed whether the timepoint of stage IV diagnosis (*de novo* vs recurrence) has an impact on survival in the B-cohort.

Methods

Clinico-demographic, treatment and survival data were collected retrospectively and analyzed for all patients with met NSCLC diagnosed between Jan 1, 2014 and Dec 31, 2016, seen at Princess Margaret Cancer Centre.

Table 1. Baseline Demographic Characteristics

Cohort	n (%)	Median Age (years)	Female Gender	Ethnicity	Never-smokers	Adenocarcinoma Morphology	De novo Stage IV	EGFR+	ALK+
B	120 (12%)	67	52%	69% white; 24% Asian	27%	77%	72%	24%	4%
BS	226 (23%)	66	50%	57% white; 30% Asian	34%	86%	92%	33%	4%
S	636 (65%)	69	42%	65% white; 21% Asian	26%	72%	74%	19%	5%

Results

- B-cohort patients had a median overall survival (OS) of 18.4 months compared to 11.5 months in BS-cohort and 14.1 months in S-cohort (Figure 1).
- Patients with brain-only metastasis had a similar OS compared to patients with single site systemic disease (18.4 vs 17.4 months respectively, $p=0.72$).
- OS was superior in the sub-cohort of patients presenting with *de novo* stage IV compared to met recurrence in the B-cohort (21.5 vs 10.3 months respectively; Figure 2).
- This association remained significant when adjusting for sex, age, ethnicity, smoking, histology and mutational status; aHR : 2.21 (95%CI 1.32-3.70, $p=0.003$)
- No similar trends were seen within the systemic only cohort ($p=0.68$).

Figure 1. Overall Population 5 Year Survival

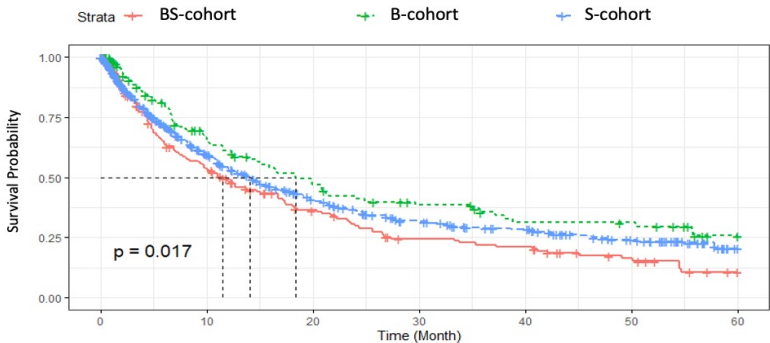
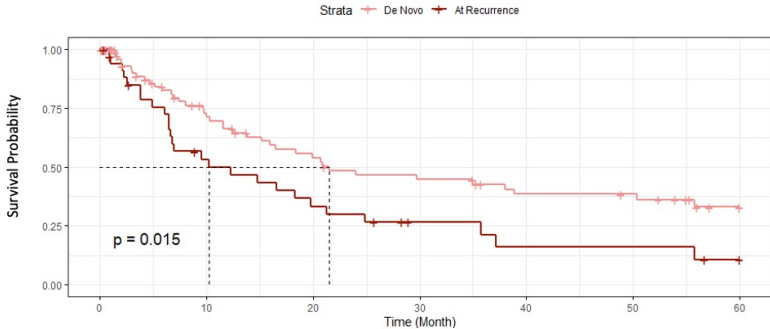


Figure 2. Brain Only Population 5 Year Survival



Conclusions

- Stage IV NSCLC patients with brain-only disease represent a prognostically favourable population when compared to patients with brain and systemic metastases.
- Patients with brain-only recurrence after initial curative intent treatment had significantly poorer prognosis than patients presenting with *de novo* brain-only disease.