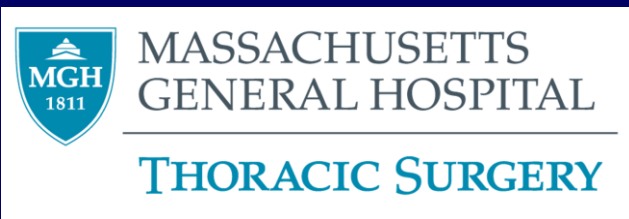


17P: Treatment Sequence for Non-small-cell Lung Cancer with Brain Oligometastases does not Impact Overall Survival



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INTRODUCTION

- Current treatment guidelines for oligometastatic Stage IV NSCLC recommend aggressive local treatment to the primary lung and metastatic site
- However, the optimal sequence of primary thoracic and metastatic treatment is not well-established

OBJECTIVES

- To evaluate long-term survival of patients with NSCLC with brain oligometastases who underwent initial brain metastatic treatment followed by primary thoracic treatment versus initial primary thoracic treatment followed by brain metastatic treatment

METHODS

- Data Source:** National Cancer Database (2010-2019)
- Inclusion Criteria:** Patients with cT1-4, N0-3, M1b-c NSCLC with synchronous limited metastatic disease involving only the brain who underwent systemic chemotherapy and definitive (surgery or radiation) primary and metastatic treatment
- Exclusion Criteria:** Previous unrelated malignancy, other distant metastasis, whole brain radiation therapy, palliative therapy
- Definition of Comparison:** Upfront treatment of brain metastatic disease followed by local treatment to the lung primary site versus upfront local treatment to the lung primary site followed by treatment of brain metastatic disease
- Statistical Analysis:** Kaplan-Meier analysis; Multivariable Cox proportional hazards modeling; Propensity score matching on 10 common prognostic variables (2:1 variable ratio with replacement, greedy nearest neighbor matching algorithm, caliper of 0.01)

Study Cohort:
1,130

Upfront Treatment of
Brain Metastatic Disease
893 (79.0%)

Upfront Treatment of
Primary Thoracic Disease
237 (21.0%)

RESULTS

Baseline Characteristics: Stratified by Treatment Sequence

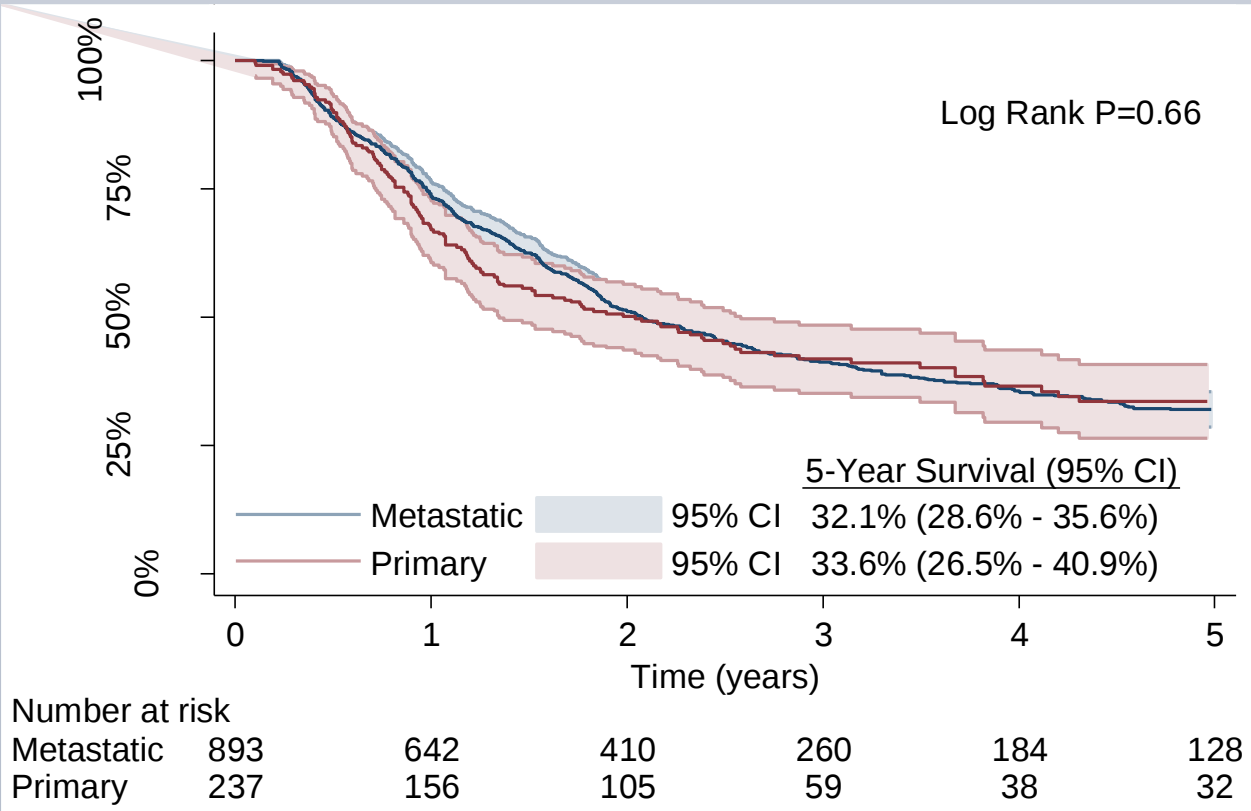
	Upfront Treatment of Brain Metastatic Disease (N=893)	Upfront Treatment of Primary Thoracic Disease (N=237)	P
Treatment of Brain Metastatic Disease			<0.001
Neurosurgery	71.7%	21.9%	
Brain SRS	28.3%	78.1%	
Thoracic Treatment			<0.001
Surgery	29.7%	46.8%	
Radiation	70.3%	50.2%	
Age, median (IQR)	61 (54, 67)	63 (57, 69)	<0.001
Female Sex	50.6%	51.9%	0.73
Race			0.70
White	85.8%	87.8%	
Black	10.3%	8.4%	
Other	3.9%	3.8%	
Charlson-Deyo Comorbidity Score			0.06
0	65.7%	69.2%	
1	21.3%	22.8%	
2	8.1%	3.0%	
3+	4.9%	5.1%	
Histology			<0.001
Adenocarcinoma	76.0%	62.1%	
Squamous	14.3%	23.7%	
Other	9.8%	14.2%	
Tumor Location			0.20
RUL	42.4%	36.4%	
RML	4.6%	4.3%	
RLL	12.8%	18.7%	
LUL	29.5%	28.7%	
LLL	10.7%	12.0%	
Clinical T Status			0.02
T1	29.3%	21.5%	
T2	37.1%	35.4%	
T3	19.5%	23.2%	
T4	14.1%	19.8%	
Clinical N Status			0.06
N0	42.7%	39.7%	
N1	16.1%	11.0%	
N2	32.8%	37.6%	
N3	18.4%	11.8%	

RESULTS (cont.)

Tumor and Treatment Characteristics: Stratified by Primary Thoracic Treatment Modality

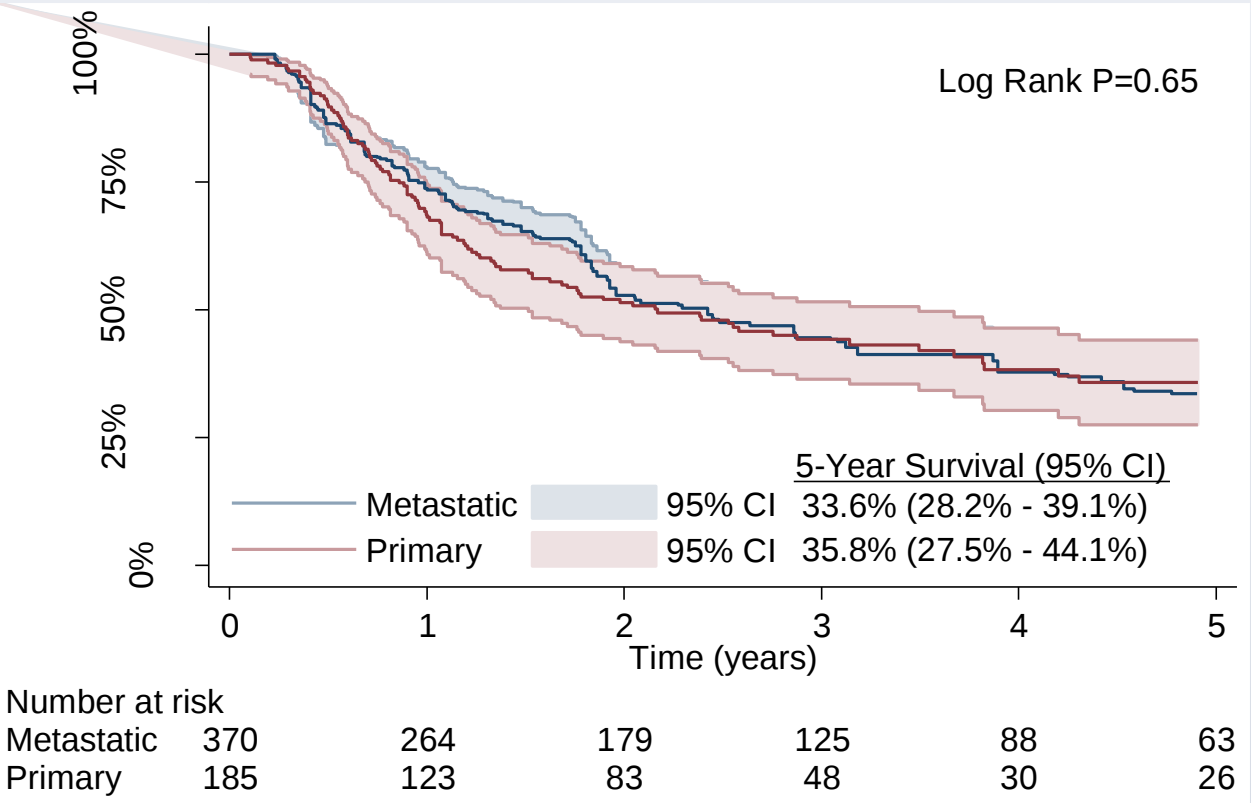
	Thoracic Radiation (N=754)	Thoracic Surgery (N=376)	P
Clinical T Status			<0.001
T1	22.9%	37.2%	
T2	34.4%	41.5%	
T3	22.7%	15.4%	
T4	20.0%	5.9%	
Clinical N Status			<0.001
N0	27.3%	71.5%	
N1	15.9%	13.3%	
N2	43.4%	14.6%	
N3	13.4%	0.5%	
Treatment of Brain Metastatic Disease			<0.001
Neurosurgery	65.4%	52.9%	
Brain SRS	34.6%	47.1%	
Surgery Type			N/A
Segmentectomy		2.9%	
Lobectomy	N/A	75.8%	
Pneumonectomy		4.3%	
Other		9.8%	
Radiation Modality			
SBRT	10.5%	N/A	N/A
Dose (Gy), median (IQR)	60 (45, 60)	N/A	N/A
Fractions, median (IQR)	30 (10, 32)	N/A	N/A

Overall Survival after Upfront Treatment of Brain Metastatic versus Primary Thoracic Disease:



RESULTS (cont.)

Overall Survival after Upfront Treatment of Brain Metastatic versus Primary Thoracic Disease: 2:1 Propensity Score-Matched Analysis



SUMMARY

- 79.0% of patients with Stage IV M1b-c NSCLC with limited metastases involving only the brain underwent upfront treatment of brain metastatic disease followed by local treatment to the lung primary site
- Upfront treatment of brain metastatic disease was more common in patients who underwent neurosurgical resection or thoracic radiation
- In unadjusted and propensity score-matched analyses, upfront treatment of brain metastatic versus primary thoracic disease did not impact overall survival

CONCLUSIONS

- The findings of this study suggest that for patients presenting with NSCLC with synchronous limited metastatic disease isolated to the brain who can tolerate aggressive treatment of both the primary lung and brain metastatic sites, treatment sequence does not impact overall survival.

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