

Leptomeningeal metastatic cancer at UCSF: patient population and symptom characteristics

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BACKGROUND

Leptomeningeal metastatic disease (LMD) is an uncommon site of metastasis in advanced cancer. It is frequently accompanied by severe and often disabling symptoms and associated with a very poor prognosis. The incidence of LMD is increasing as patients with metastatic cancer are living longer secondary to improvement in systemic treatments. The optimal management of LMD has yet to be elucidated.¹⁻³

METHODS

Collected demographics, symptoms, and disease course data from a convenience sample of 104 UCSF patients diagnosed and treated for LMD within the last 5 years. Stata 16.0 was used for analysis, including chi square, t test, and ANOVA.

Patient population and demographics (total n=104)	
Age at LMD diagnosis (years)	Mean 56.5, range 24-80
Sex (female)	65.4% (n=68)
Primary tumor site	
Lung	37.5% (n=39)
Breast	32.7% (34)
Melanoma	7.7% (8)
Prostate	1.9% (2)
Lymphoma	1.9% (2)
Colorectal	1.9% (2)
Other	13.4% (14)
Missing	2.9% (3)
Weeks from LMD diagnosis to death (if applicable)	Mean 41.4, range 1.4-143.4 (n=57)
Number of hospitalizations after LMD diagnosis	Mean 1.8, range 0-11 (n=80)

DISCUSSION

Understanding the UCSF patient population with a diagnosis of LMD is a critical first step towards better prognostication and gold standard clinical care. This retrospective chart review is the first effort to identify symptom prevalence, primary cancer, and prognosis among LMD patients at UCSF. Future research is needed to better characterize how clinical outcomes are impacted by functional status at time of presentation as well as treatment modality.

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LMD presents with a wide range of severe symptoms. Most common symptoms in our cohort were headache, extremity weakness, mobility decline, and nausea.

Symptom	% of patients reported (n=100)
Headache	52%
Extremity weakness	52%
Mobility decline	45%
Nausea/vomiting	44%
Vision change	38%
Other cranial nerve symptoms	38%
Encephalopathy	33%
Bowel/bladder dysfunction	31%
Cognitive impairment	31%
Ataxia	30%
Neuropathic pain/numbness	25%
Back pain	23%
Seizures	22%
Speech impairment	19%
Intracranial hypertension	12%
Cauda equina syndrome	11%



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Primary diagnosis	Weeks from LMD diagnosis to death (mean, 95% CI)
Lung	50.0 (30.5-69.5)
Breast	50.6 (28.7-72.6)
Melanoma	28.8 (6.5-51.1)
Prostate	60.4 (0-661.2)
Lymphoma	4.6 (1 observation)
Colorectal	2.7 (1 observation)
Other	26.4 (8.8-44.0)
Missing	4.6 (0-44.5)

Not statistically significant

Primary diagnosis	Number of hospitalizations after LMD diagnosis (mean, 95% CI)
Lung	1.7 (1.2-2.2)
Breast	1.8 (1.0-2.6)
Melanoma	2.4 (1.4-3.4)
Prostate	2.5 (0-21.6)
Lymphoma	1 (1 observation)
Colorectal	1.5 (0-7.9)
Other	1.7 (0.7-2.7)
Missing	1 (1.0-1.0)

Not statistically significant

References:

1. Wang N, Bertalan MS, Brastianos PK. Leptomeningeal metastasis from systemic cancer: Review and update on management. Cancer. 2018 Jan 1;124(1):21-35. doi: 10.1002/cncr.30911. Epub 2017 Nov 22. PMID: 29165794; PMCID: PMC7418844.

2. Buszek SM, Chung C. Radiotherapy in Leptomeningeal Disease: A Systematic Review of Randomized and Non-randomized Trials. Front Oncol. 2019 Nov 15;9:1224. doi: 10.3389/fonc.2019.01224. PMID: 31803614; PMCID: PMC6872542.

3. Leal T, Chang JE, Mehta M, Robins HI. Leptomeningeal Metastasis: Challenges in Diagnosis and Treatment. Curr Cancer Ther Rev. 2011;7(4):319-327. doi:10.2174/157339411797642597.