Demographics, Disparities, And Clinical Outcome Of Pleural Effusions In Non-Hodgkin Lymphoma: A Retrospective Analysis of National Inpatient Sample

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Introduction

- Pleural effusion is a frequent complication observed in up to 20% of patients with non-Hodgkin lymphoma (NHL). Its presence often reflects advanced disease or secondary involvement of the pleura. However, the prognostic significance of pleural effusion in NHL remains uncertain, with limited data on its impact on patient outcomes.
- Understanding how pleural effusion influences the demographics, hospitalization characteristics, and clinical outcomes in NHL patients is essential to improve risk stratification, prognosis, and management strategies.

Aim

- To evaluate the demographics, disparities, and clinical outcomes of NHL hospitalizations with and without pleural effusion using the NIS 2022 database.

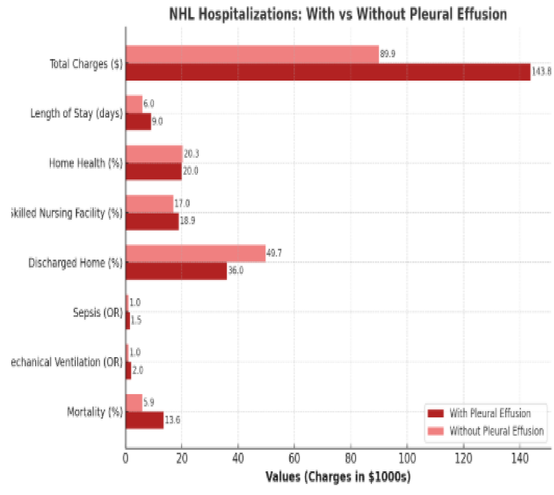
Methods

- Data Source: National Inpatient Sample (NIS) 2022
- Cohort: Hospitalizations with NHL, stratified by presence or absence of pleural effusion
- Outcomes Measured:
  1. Epidemiology (age, sex, race, region)
  2. Clinical outcomes (mortality, Charlson comorbidity index, discharge disposition)
  3. Health care utilization (length of stay, total charges)
- Statistical Analysis: Descriptive and comparative analyses were performed using T-tests for continuous variables and Chi-square tests for categorical variables. A two-tailed P < 0.05 was considered statistically significant

Variables	NHL with PE [701]	NHL without PE [8,502]	p-Value
Died	96 (13.69%)	504 (5.93%)	0.00
Mean Age (years)	71.04	69.89	0.02
Length of Stay (days)	9	6	0.00
Total Charges (USD)	$143,813.7	$89,948.13	0.00
Charl index	4.6	4.3	0.00
Gender			
Male	383 (54.64%)	4660 (54.81%)	.92
Female	318 (45.36%)	3842 (45.19%)	
Race			
White	525 (76.53%)	6263 (75.1%)	0.52
Black	51 (7.43%)	774 (9.28%)	
Hispanic	73 (10.64%)	818 (981%)	
Asian or Pacific Islander	13 (1.9%)	209 (2.51%)	
Native American	2 (0.29%)	30 (0.36%)	
Other	22 (3.21%)	244 (2.93%)	
Medium Household Income			
$1 - $55,999	23.85%	25.35%	0.018
$56,000 - $70,999	30.32%	25.07%	
$71,000 -$93,999	24.57%	25.16%	
$94,000 or more	21.26%	24.24%	
Disposition			
Routine	36.09%	49.79%	0.00
Short-term hospital	4.42%	3.41%	
SNF	18.97%	18.99%	
HH	25.68%	20.37%	
AMA	1.14%	1.51%	
Died	13.69%	5.93%	
Insurance			
Medicare	71.47	69.33	0.46
Medicaid	7.56	7.85	
Private including HMO	16.41	18.40	
Self-pay	2.00	1.62	

Results

- Total hospitalizations (2022): 9,203 NHL cases
  - With pleural effusion: 701
  - Without pleural effusion: 8,502
- Demographics:
  - Mean age: 71 years (with effusion) vs 69 years (without effusion), (P = 0.02)
  - No significant gender or racial disparities noted
- Clinical Outcomes:
  - Mortality rate: 13.6% (with effusion) vs 5.9% (without effusion), (P = 0.00)
- Odds Ratios (OR) of HL with pleural effusion:
  - Mortality: 2.17 (95% CI: 1.7–2.7; P = 0.01)
  - Mechanical ventilation: 2.03 (95% CI: 1.5–2.7; P < 0.001)
  - Sepsis: 1.49 (95% CI: 1.1–1.9; P = 0.01)
- Discharge Disposition:
  - NHL with pleural effusion: 36% discharged home, 18.9% to skilled nursing facility
  - NHL without pleural effusion: 49.7% discharged home, 17% to skilled nursing facility, 20.3% to home health
- Health Care Utilization:
  - Mean length of stay: 9 days (with effusion) vs 6 days (without effusion), P = 0.00
  - Mean total charges: $143,813.7 (with effusion) vs $89,948.1 (without effusion), P = 0.00



Discussion

- Our analysis revealed that NHL patients with pleural effusions had worse clinical outcomes and a higher healthcare burden compared to those with NHL hospitalizations without pleural effusions. This necessitates more aggressive treatment in patients with NHL with pleural effusions.