

Impact of the day of admission on the outcomes of Metastatic extradural spinal cord compression

BACKGROUND

Metastatic extradural spinal cord compression (MESCC) is an oncologic emergency and can cause permanent disabilities if not treated in a time sensitive manner. Earlier diagnosis and treatment can lead to better outcomes. We wanted to study the impact of admission on weekends on the outcomes of MESCC

METHODS

Healthcare Cost and Utilization Project-Nationwide Inpatient Sample database-2016-2020 was queried to identify all breast, prostate and lung cancer patients admitted with spinal cord compression and were further stratified based on the day of admission. The groups were compared for inpatient mortality, length of stay (LOS), and total hospital charges (THC) and secondary outcomes. Statistics were performed using t-test, univariate and multinomial logistic regression .

Table 1: Demographic characteristics of patients admitted with MESCC

	Weekday	Weekend	p value
Total admissions for MESCC	1,320,120	276,030	-
Proportion of admissions	82.71	17.29	-
Mean age (95% CI)	68.5	71.3	<0.01
Female, %	37.7	42.3	< 0.01
Race, %			< 0.01
White	67.0	65.9	
Black	16.7	18.4	
Hispanic	7.7	7.8	
Other	8.6	7.9	
CCI, %			< 0.05
1	0	0	
2	27.2	13.4	
3 or more	72.8	86.6	
Primary payer, %			< 0.01
Medicare	61.7	71.1	
Medicaid	7.6	8.4	
Private insurance	29.4	19.2	
No insurance	1.3	1.3	

CI: confidence interval; CCI: Charlson Comorbidity Index

Mean age of MESCC patients was higher in the weekend 71.3 vs 68.5 years (p-value <0.01).

Weekend admissions had an increased adjusted odds of mortality (aOR 1.32, 95% CI: 1.26-1.38, p-value <0.01).

Weekend admissions had an increased odds of several secondary outcomes



RESULTS

- 1,596,150 patients with above mentioned cancers were admitted for cord compression.
- 4.19% (N=66,850) people died during the hospitalization and among them, 24.30% (N=16,245) were admitted on a weekend.
- After adjusting for confounders, patients admitted on weekends had an increased odds of mortality (aOR-1.32, 95%CI: 1.26-1.38, p<0.001)
- There was a trend towards increased LOS, 4.6 vs 5.4 days but it was not statistically significant.
- The THC was lower on weekends \$63,852 vs 58,958 (adjusted charges \$4430, 95%CI: 5187-3671, p<0.001).
- On a multivariate regression model adjusting for confounders, those admitted on weekends had an increased odds of developing secondary outcomes like
 - Sepsis (aOR-1.52, 95%CI: 1.46-1.56, p<0.001,
 - Acute Respiratory Failure (aOR-1.33, 95%CI: 1.28-1.37, p<0.001)
 - Pulmonary Embolism (aOR-1.18, 95%CI: 1.09-1.27, p<0.001)
 - Acute Kidney Injury (aOR-1.28, 95%CI: 1.24-1.31, p<0.001)
 - Urinary retention (aOR-1.17, 95%CI: 1.13-1.20, p<0.001)
 - Discharge to nursing facility (aOR-1.20, 95%CI: 1.17-1.23, p<0.001)

DISCUSSION

MESCC patients admitted on weekends had an increased odds of mortality and developing several secondary outcomes as mentioned. Previous studies have shown that delay in diagnosis and treatment lead to worse outcomes. Weekend admissions can be associated with significant delays in diagnosis and treatment likely due to staffing shortages, non-availability of emergent MRIs, lack of senior physicians on duty. Well-designed clinical teams and protocols that can be activated even on weekends might help improve the outcome.

REFERENCES

1.Tsukada Y et al. Factors that delay treatment of symptomatic metastatic extradural spinal cord compression. *J Palliat Med.* 2015;18(2):107-113. doi:10.1089/jpm.2014.0099

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