The Role of Alcohol Use Disorder in the Management and Outcomes of Hypopharyngeal Malignancy

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Abstract

Objective: Our study investigates the role of alcohol use disorder (AUD) in the management and outcomes of inpatients with hypopharyngeal malignancy (HM).

Methods: The 2017 National Inpatient Sample (NIS) was queried to identify adult inpatients with a primary diagnosis of hypopharyngeal malignancy (HM) (ICD-10: C12-C13). AUD was identified (ICD-10: F10.1). Univariate and multivariable analyses were performed to identify statistical associations with AUD status.

Results: Of the 1,375 inpatients diagnosed with HM, the majority were male (79.6%), White (67.5%), and had no diagnosis of AUD (84.4%). Mean patient age was 64.6 years. Patients with AUD had a higher incidence of liver disease (20.9% vs. 7.3%), coagulopathy (14.0% vs. 6.5%), preoperative weight loss (55.8% vs. 42.7%), and depression (23.3% vs. 10.8%) than patients without AUD (p<0.001). On multivariable analyses, adjusting for several patient demographics and comorbidities, patients with AUD had fewer total charges ($109,167 vs. $128,006, p=0.005) than patients without AUD. Patients with and without AUD had similar length of stay (10.09 vs 9.87, p=0.284), number of procedures undergone (5.47 vs. 5.01, p=0.487), time from admission to first procedure (TFP) (1.24 vs. 1.42, p=0.081), and mortality (2.3 vs. 2.6%, p=0.537).

Conclusions: In a national cohort of inpatients with HM, patients with AUD had a higher incidence of many comorbidities and fewer total charges than those without AUD.

Introduction

- Hypopharyngeal malignancy is relatively rare and accounts for 3-5% of all head and neck cancers.[1,2]
- Hypopharyngeal cancer is an aggressive head and neck cancer, often presenting with locally advanced disease with 5-year overall survival of 25-35%.[3]
- Alcohol is a well-established risk factor for head and neck cancer.[4]
- Several studies assessing head and neck cancer subsites have specifically identified an association between alcohol consumption and increased risk for hypopharyngeal malignancy.[5,6]
- This study aims to analyze the potential correlation between alcohol use disorder and patient characteristics, healthcare utilization, and outcomes of hypopharyngeal malignancy.

Methods

- A population-based retrospective analysis of the 2017 National Inpatient Sample (NIS) was performed to identify adults with a diagnosis of hypopharyngeal malignancy.
- Patient demographics, alcohol use disorder status, hospital stay information, comorbidities, and complications were collected and analyzed.
- Univariate and multivariable analyses were used to assess for statistical associations between alcohol use disorder status and hypopharyngeal malignancy outcomes.
- 1,375 adult inpatients with hypopharyngeal malignancy were identified and studied to find associations with patient alcohol use disorder status.

Results

Table 1: Demographic Data of Patients with Hypopharyngeal Malignancy

		No Alcohol Use Disorder	Alcohol Use Disorder	Total	p-value
		n = 1,160 (84.4%)	n = 215 (15.6%)	n = 1,375	
Age	Age, years (mean [SE])	65.36 [0.32]	60.35 [0.48]	64.57 [0.28]	**< 0.001**
Sex	Male	78.0%	88.4%	79.6%	**< 0.001**
	Female	22.0%	11.6%	20.4%	
Race	White	68.3%	63.4%	67.5%	**0.005**
	Black	13.4%	22.0%	14.7%	
	Other	18.3%	14.6%	17.7%	
Median Income Quartile – Patient Zip Code	0 – 25%	33.5%	34.9%	33.7%	0.344
	26 – 50%	24.3%	25.6%	24.5%	
	51 – 75%	25.7%	27.9%	26.0%	
	76 – 100%	16.5%	11.6%	15.8%	
Primary Payer Status	Medicare	48.5%	41.9%	47.4%	**< 0.001**
	Medicaid	17.7%	34.9%	20.4%	
	Private Insurance	27.7%	18.6%	26.3%	
	Self-Pay	0.9%	2.3%	1.1%	
	Other	5.2%	2.3%	4.7%	
Hospital Region	Northeast	16.4%	20.9%	17.1%	**<0.001**
	Midwest	22.4%	32.6%	24.0%	
	South	42.7%	27.9%	40.4%	
	West	18.5%	18.6%	18.5%	
Severity of Illness Subclass (Loss of Function)	Minor LOF	6.0%	2.3%	5.5%	0.163
	Moderate LOF	23.7%	23.3%	23.6%	
	Major LOF	47.0%	48.8%	47.3%	
	Extreme LOF	23.3%	25.6%	23.6%	

Results

Table 2: Comorbidities in Patients with Hypopharyngeal Malignancy

	No Alcohol Alcohol Use Disorder	Alcohol Use Disorder	Total	p-value
	n = 1,160 (84.4%)	n = 215 (15.6%)	n = 1,375	
Congestive Heart Failure	7.3%	11.6%	8.0%	**0.033**
Valvular Disease	3.0%	0.0%	2.5%	**0.010**
Peripheral Vascular Disease	6.0%	4.7%	5.8%	0.426
Paralysis	2.2%	4.7%	2.5%	**0.033**
Other Neurological Disorders	6.9%	14.0%	8.0%	**< 0.001**
Chronic Pulmonary Disease	31.9%	37.2%	32.7%	0.127
Diabetes with Chronic Complications	9.9%	9.3%	9.8%	0.782
Hypothyroidism	17.2%	2.3%	14.9%	**< 0.001**
Renal Failure	6.9%	2.3%	6.2%	**0.011**
Liver Disease	7.3%	20.9%	9.5%	**< 0.001**
Peptic Ulcer Disease Excluding Bleeding	0.9%	4.7%	1.5%	**< 0.001**
Metastatic Cancer	27.2%	30.2%	27.6%	0.354
Solid Tumor without Metastasis	8.2%	4.7%	7.6%	0.073
Coagulopathy	6.5%	14.0%	9.5%	**< 0.001**
Obesity	5.2%	4.7%	5.1%	0.749
Weight Loss	42.7%	55.8%	44.7%	**< 0.001**
Fluid and Electrolyte Disorders	34.5%	37.2%	34.9%	0.441
Deficiency Anemias	21.6%	23.3%	21.8%	0.578
Psychoses	0.9%	4.7%	1.5%	**< 0.001**
Depression	10.8%	23.3%	12.7%	**< 0.001**
Hypertension	53.9%	53.5%	53.8%	0.916

Table 3: Management, Charges, and Outcomes of Patients with Hypopharyngeal Malignancy

		No Alcohol Use Disorder	Alcohol Use Disorder	Total	p-value
		n = 1,160 (84.4%)	n = 215 (15.6%)	n = 1,375	
Total Charges	Charges ($) (mean [SE])	128,006.03 [4,126.82]	109,167.02 [6,350.52]	125049.54 [3,623.08]	**0.013**
Length of Stay	Number of Days (mean [SE])	9.87 [0.32]	10.09 [0.61]	9.90 [0.29]	0.774
Number of Procedures	Number of Procedures (mean [SE])	5.01 [0.12]	5.47 [0.26]	5.08 [0.11]	0.112
Time Until 1st Procedure	Number of Days (mean [SE])	1.42 [0.11]	1.24 [0.14]	1.39 [0.09]	0.282
Mortality	Mortality Rate (%)	2.6%	2.3%	2.5%	0.824

Table 4: Adjusted Linear Multivariable and Logistic Regression Analyses of Management, Charges, and Outcomes in Patients with Hypopharyngeal Malignancy

		Adjusted (Alcohol use disorder vs. reference No alcohol use disorder)	95% CI	p-value
Total Charges	Charges (Marginal $)	-28,754.18	(-48,812.99 to -8,695.36)	**0.005**
Length of Stay	Length of Stay (Marginal days)	-0.84	(-2.38 to 0.70)	0.284
Number of Procedures	Procedures (Marginal number)	0.22	(-0.40 to 0.84)	0.487
Time Until 1st Procedure	Time (Marginal days)	-0.46	(-0.97 to 0.06)	0.081
Mortality	Mortality Rate (OR)	1.49	(0.42 to 5.33)	0.537

Multivariable analysis with age, sex, race, primary payer status, hospital region, median income quartile, and severity of illness

Conclusion

- In this study of inpatients with hypopharyngeal malignancy, patients with alcohol use disorder were more frequently younger, male, and had higher rates of comorbidities including liver disease, coagulopathy, preoperative weight loss, depression, and neurological disorders.
- Despite this higher burden of comorbidities, patients with alcohol use disorder were associated with less total charges compared to those without alcohol use disorder.
- Length of stay, number of procedures, time to first procedure, and inpatient mortality did not differ significantly between alcohol use disorder and non-alcohol use disorder patients.
- These findings suggest that while alcohol use disorder is associated with worse baseline health status in patients with hypopharyngeal malignancy, it does not independently increase hospital resource utilization or mortality risk during inpatient admissions.

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