



Abstract

OBJECTIVES: The MELDNa score is a scoring system for accessing the severity of chronic liver disease. We evaluated the relationship between chronic liver disease (CLD) and outcomes in glossectomy patients.

STUDY DESIGN: Retrospective database review.

METHODS: Current Procedural Terminology (CPT) codes were used to identify cases with a primary procedure of glossectomy, including hemiglossectomy, partial glossectomy, and total glossectomy with or without neck dissection in the 2005-2018 National Surgery Quality Improvement Program (NSQIP) database. To identify CLD patients, MELDNa scores were calculated using pre-operative bilirubin, creatinine, international normalized ratio, and serum sodium. CLD patients were identified as having MELDNa > 10. Demographics, comorbidities, and complication incidences were compared between CLD and non-CLD patients using chi-square analyses. The independent effect of CLD on adverse outcomes was analyzed using binary logistic regression.

RESULTS: 867 (81.1%) non-CLD and 202 (18.9%) CLD patients were identified from 2005 to 2018. CLD patients more likely had diabetes (11.3% vs. 4.6%; p=0.002), dyspnea (13.9% vs. 5.9%; p< 0.001), hypertension (73.3% vs. 47.9%; p< 0.001), dialysis (2.0% vs. 0.0%; p=0.001) and disseminated cancer (12.4% vs. 6.8%; p=0.013). Additionally, cohorts significantly differed by age (p=0.001) and gender (p< 0.001). After adjusting for demographic confounders and comorbidities on logistic regression analysis, we found that CLD patients had increased odds of postoperative urinary tract infection (OR 9.88; 95% CI 2.24 - 43.67; p=0.003) but not mortality or readmission.

CONCLUSIONS: CLD is not associated with an increase in mortality or readmission in glossectomy patients.

Introduction

- Glossectomies are commonly performed in patients presenting with neoplasms of the tongue.¹
- Single center studies have indicated potential to predict greater incidence and/mortality from oral cancers with worsened liver function.^{2,3}
- Model for Endstage Liver Disease (MELD) score has been used in single-center studies to predict postoperative morbidity and mortality in patients with head and neck cancer.⁴
- This study seeks to evaluate the association between chronic liver disease (CLD) as indicated by the MELDNa and adverse outcomes in a national cohort of patients undergoing glossectomy.

Methods and Materials

This retrospective cohort analysis utilized the 2005-2018 National Surgery Quality Improvement Program database. CPT codes were used to identify glossectomies, including hemiglossectomy, partial glossectomy, and total glossectomy with or without neck dissection (41120, 41130, 41135, 41140, 41145, 41150, 41153, 41155). CLD patients were identified by calculating MELDNa scores using pre-operative bilirubin, creatinine, international normalized ratio, and serum sodium. MELDNa greater than 10 indicated CLD. Chi-square analyses were used to compare demographics, comorbidities, and complication incidences. Binary logistic regression was used to evaluate the independent effect of CLD on adverse outcomes

Conclusion

- After adjusting for demographics and comorbidities, only the odds of urinary tract infection remained significant.
- This suggests that the presence of chronic liver disease in a patient undergoing glossectomy likely will not affect mortality or overall morbidity.

Results

Table 1. Demographics and rates of comorbidities of patients undergoing glossectomy according to CLD status.

	MELDNa < 10 (n = 867)	MELDNa > 10 (CLD) (n = 202)	p-value
Gender			<0.001
Female	39.9%	26.7%	
Male	60.1%	73.3%	
Age Cohorts			0.001
<35	4.4%	1.5%	
35-49	12.8%	5.0%	
50-65	55.9%	59.9%	
65+	26.9%	33.7%	
Race			0.067
White	77.1%	79.4%	
Black	6.8%	10.6%	
Asian	4.1%	1.0%	
Hawaiian/Pacific	0.1%	0.0%	
Native American	1.1%	0.0%	
Unknown	10.8%	9.0%	
Obese	27.9%	26.9%	0.861
Diabetic	4.6%	11.3%	0.002
Smoker	28.4%	32.2%	0.302
Dyspnea	5.9%	13.9%	<0.001
Poor Functional Status	1.6%	3.0%	0.242
Ventilator Dependence	0.2%	0.0%	1.000
COPD	5.8%	8.9%	0.109
Ascites	0.0%	0.5%	0.189
Congestive Heart Failure	0.8%	0.5%	1.000
Hypertension	47.9%	73.3%	<0.001
Renal Failure	0.0%	0.5%	0.189
Dialysis	0.0%	2.0%	0.001
Disseminated Cancer	6.8%	12.4%	0.013
Open wound	3.1%	5.4%	0.136
Steroid use	3.9%	6.9%	0.087
Weight loss	5.9%	12.9%	0.001
Bleeding disorder	2.3%	10.4%	<0.001
Preop Blood Transfusion	0.2%	1.5%	0.049
Systemic Sepsis	1.2%	2.0%	0.313

Table 2. Binary logistic regression analysis of adverse outcomes in CLD patients compared to non-CLD patients.

Outcome	Odds Ratio	95% Confidence Interval	p-value
Urinary Tract Infection	9.881	2.236 - 43.669	0.003
Unplanned Readmission	1.139	0.580 - 2.237	0.705
Mortality	2.289	0.466 - 11.238	0.308

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References

- Bigcas JLM, Okuyemi OT. Glossectomy. 2023 Jul 25. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. PMID: 32809471.
- Chang KP, Lee CC, Su YC, Han ML, Kung TH, Chang HJ. Correlation between liver cirrhosis and risk of death from oral cancer: Taiwan cohort study. J Laryngol Otol. 2016 Jun;130(6):565-70. doi: 10.1017/S002221511600791X. Epub 2016 May 10. PMID: 27160281.
- Aberg F, Helenius-Hietala J. Oral Health and Liver Disease: Bidirectional Associations-A Narrative Review. Dent J (Basel). 2022 Jan 21;10(2):16. doi: 10.3390/dj10020016. PMID: 35200242; PMCID: PMC8870998.
- Kao HK, Guo LF, Cheng MH, Chen IH, Liao CT, Fang KH, Yu JS, Chang KP. Predicting postoperative morbidity and mortality by model for endstage liver disease score for patients with head and neck cancer and liver cirrhosis. Head Neck. 2011 Apr;33(4):529-34. doi: 10.1002/hed.21486. PMID: 20665744.