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BACKGROUND

Alcohol-associated Hepatitis (AH) is an acute clinical manifestation of Alcohol-associated Liver Disease (ALD).

Severe AH is a life-threatening condition that presents with profound hepatocellular dysfunction, and requires hospitalization and medical treatment. AH patients have a high mortality rate (average 26% in 28 days and 29% in 90 days, ref 1), and there is no FDA-approved treatment. Corticosteroids may be used for the treatment of AH, but their use is limited by contraindications and failure to improve survival beyond 30 days (ref 2).

There are no recent epidemiological data on the prevalence of hospitalized AH in the US. In this study we examined the prevalence, co-morbidities, and mortality of hospitalized AH using data from 2015-2018 Nationwide Inpatient Sample (NIS) database (ref 3).

METHODS

Data source: NIS database (2015-2018), containing data on more than seven million hospital stays annually from approximately 1,000 hospitals, constituting a 20% stratified sample of all U.S. hospitals.

Subjects: Patients hospitalized with a primary or secondary diagnosis of AH were identified using ICD-9 (Q1-Q3 2015) and ICD-10 (Q4 2015, 2016-2018) codes.

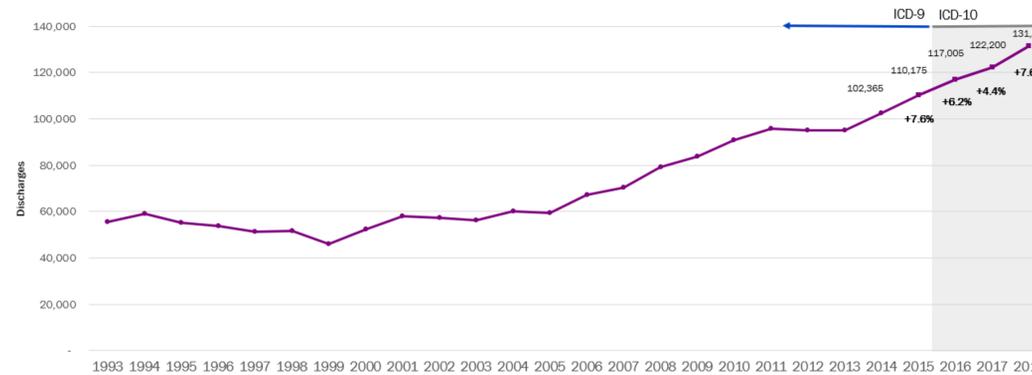
Statistical analyses: Statistical analyses were performed in SAS, v. 9.4. For each variable, univariate statistical tests were performed to determine variation over the four years studied. The statistical significance of continuous variables was assessed by a one-way ANOVA model, with a linear contrast used to assess linear trend in the measurements. Discrete variables were treated as two-way contingency tables, and Pearson’s chi-square statistic was used to assess stability over time.

REFERENCES

- Hughes, et al. Survival from alcoholic hepatitis has not improved over time, PLOS ONE 2018; 13(2): e0192393
- Thursz, et al. Prednisolone or Pentoxifylline for Alcoholic Hepatitis. NEJM 2015; 372: 1619-1628
- US Department of Health and Human Services’ Healthcare Cost and Utilization Project reports, <https://hcupnet.ahrq.gov>

RESULTS

National Estimates of Hospitalized AH Discharges



Diagnosis Codes	All cases with AH				Cases with AH as the primary diagnosis			
	2015	2016	2017	2018	2015	2016	2017	2018
Alcoholic Hepatitis	110,175	117,005	122,200	131,510	15,485	16,015	16,570	18,770

Comorbidities in Hospitalized AH Patients

Variable	2018	
	Subjects who died during hospitalization (n=4,985)	Subjects who survived during hospitalization (n = 126,965)
Age (mean ± SD)	52.1 ± 11.5	47.9 ± 12.1
Mortality % /Survival % (mean)	3.8 (Mortality)	96.2 (Survival)
Race (%) White	66.6	68.6
Race (%) Black	9.2	10.0
Race (%) Hispanic	12.3	12.3
Race (%) Others	8.0	6.5
Race (%) Unknown	3.9	2.6
Gender (female, %)	37.0	33.5
Presence of hepatitis C (%)	8.7	7.1
Presence of cirrhosis (%)	69.1	34.0
Sepsis (%)	51.9	7.3
Pneumonia (%)	6.8	1.6
Spontaneous bacterial peritonitis (%)	9.9	1.8
Urinary tract infection (%)	13.5	7.9
Acute kidney failure (%)	80.2	19.2
Presence of ascites (%)	56.5	22.1
Presence of hepatic encephalopathy (%)	42.1	12.3
Presence of coagulopathy (%)	46.0	13.3
Length of stay (days) (mean ± SD)	8.9 ± 11.3	6.0 ± 6.7
Total charges during hospitalization (\$) (mean ± SD)	151,505 ± 190,837	55,992 ± 89,872
Average total charges adjusted by LOS (\$/day) (mean ± SD)	23,014 ± 23,004	10,180 ± 8,542

Characteristics of Hospitalized AH Patients

Variable Condition	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	P-value Overall	P-value Linear Trend
Ascites	3,374 (15.3)	4,983 (21.3)	5,577 (22.8)	6,224 (23.6)	<.00001	<.00001
Hepatic encephalopathy	2,887 (13.1)	2,740 (11.7)	3,224 (13.2)	3,551 (13.5)	<.00001	0.00489
Coagulopathy	2,688 (12.2)	3,094 (13.2)	3,436 (14.1)	3,843 (14.6)	<.00001	<.00001
Ascites + hepatic encephalopathy	1,468 (6.7)	1,335 (5.7)	1,647 (6.7)	1,803 (6.8)	<.00001	0.01981
Ascites + coagulopathy	1,090 (5.0)	1,700 (7.3)	1,991 (8.2)	2,303 (8.7)	<.00001	<.00001
Hepatic encephalopathy + coagulopathy	1,168 (5.3)	920 (3.9)	1,161 (4.8)	1,318 (5.0)	<.00001	0.89121
Ascites + Hepatic encephalopathy + coagulopathy	598 (2.7)	557 (2.4)	718 (2.9)	840 (3.2)	<.00001	0.00002
Acute kidney failure	4,272 (19.4)	4,654 (19.9)	5,069 (20.8)	5,675 (21.5)	<.00001	<.00001
Sepsis	1,855 (8.4)	2,066 (8.8)	2,173 (8.9)	2,365 (9.0)	0.16263	0.04467
Pneumonia	282 (1.3)	326 (1.4)	349 (1.4)	465 (1.8)	0.00006	0.00001
Spontaneous bacterial peritonitis	394 (1.8)	451 (1.9)	471 (1.9)	564 (2.1)	0.04774	0.00821
Urinary tract infection	2,009 (9.1)	2,055 (8.8)	2,052 (8.4)	2,145 (8.1)	0.00060	0.00003
Underlying hepatitis C infection	1,908 (8.7)	1,913 (8.2)	2,024 (8.3)	1,898 (7.2)	<.00001	<.00001
Presence of cirrhosis	7,197 (32.7)	7,705 (33.0)	8,401 (34.4)	9,321 (35.3)	<.00001	<.00001

CONCLUSIONS

- We observed a ~19% increase in total hospitalized AH from 2015 to 2018
- In-hospital mortality rate remains high, especially in AH patients with infectious complications, acute renal failure, sepsis and other comorbidities
- There is significant healthcare cost and utilization among hospitalized AH patients, notably in those who died
- Our results underscore an unmet and urgent medical need to identify effective therapies for hospitalized AH patients

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