

Trends of Alcohol hepatitis related hospitalization from 2011 to 2017 NIH study

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INTRODUCTION

Alcoholic hepatitis (AH) is the most florid manifestation of alcoholic liver disease which accounts for significant morbidity, mortality, and financial burden. Aim of this study is to evaluate temporal trend of hospitalizations from AH, patients demographics, mortality, mortality related risk factors, clinical outcomes and evaluate its financial impact.

METHODS

The National Inpatient Sample databases (from 2011 to 2017) to which are collected as part of Healthcare Cost and Utilization Project by Agency for Healthcare Research and Quality were utilized. Individuals aged 21 years and older were included. The hospitalizations with primary diagnosis of AH and secondary AH were captured by ICD-9 and its correspondent ICD-10 codes. Confounders such as steatohepatitis, viral hepatitis, chronic hepatitis, cirrhosis without mentioning alcohol, hepatocellular carcinoma were captured by ICD-9 and their correspondent ICD-10 and were removed. The national estimates of hospitalization were derived using sample weights provided by National Inpatient Sample.

RESULTS

We observed the increased in total cases of AH-related hospitalization from 281506 (0.7% of total admission in 2011) to 324050 (0.9% of total admission in 2017). Median age ranges between 54 and 55. most common age group 45-65 range (57.8% - 60.7%). Most common race is white (63.2%-66.4). Mostly in males (69.7-71.2%). Primary health care payer is Medicare (29.4-30.7%) and Medicaid (21.5-32.5%). Most common geographical location is the south (33.6-34.4%). Majority of patients were admitted to large hospitals (50.2-62.3%) in urban areas. Most common presenting diagnosis was alcoholic cirrhosis of liver (63.5-69%). Most common outcome was routine discharge (60-63.3%). Length of stay median was 4. Mortality of AH (5.3-5.5%). Most common mortality risk factor is acute renal failure (59.6-72.1) and GI hemorrhage (17.2-20.3%). Total charges range was between 25242.62 and 34874.50.

CONCLUSION

AH-related hospitalization continued to increase during the study period. Substantial increases in health care cost and utilization among hospitalized AH patients were observed. Mortality remained the same throughout the study period.

Table 1. Trend of Alcoholic Hepatitis-Related Hospitalization, 2011 to 2017

	2011	2012	2013	2014	2015	2016	2017	p-value
Total admission	38590733	36484846	35597792	35358818	35769942	35675421	35798453	
AH-related admission (%)	281506 (0.7%)	274365 (0.8%)	278580 (0.8%)	291435 (0.8%)	308765 (0.9%)	313235 (0.9%)	324050 (0.9%)	<0.001
Admission when primary dx is AH (%)	47140 (0.1%)	45710 (0.1%)	46715 (0.1%)	48395 (0.1%)	54955 (0.2%)	66170 (0.2%)	71290 (0.2%)	<0.001

Table 2 Summary Statistics of demographic of Hospitalized Alcoholic Hepatitis Patients, 2011 to 2017

Characteristic	AH-related admission							p-value ¹	
	2011	2012	2013	2014	2015	2016	2017	Overall	Between-group
n	281506	274365	278580	291435	308765	313235	324050		
Age in years at admission (median (Q1, Q3))	54.00 (46.00, 61.00)	54.00 (46.00, 61.00)	54.00 (46.00, 62.00)	54.00 (46.00, 62.00)	54.00 (46.00, 62.00)	54.00 (46.00, 62.00)	55.00 (46.00, 62.00)	<0.001	
Age Group (%)								<0.001	
< 25	1545 (0.5)	1215 (0.4)	1135 (0.4)	1295 (0.4)	1320 (0.4)	1635 (0.5)	1535 (0.5)		0.003
25-44	57738 (20.5)	57040 (20.8)	58155 (20.9)	61335 (21.0)	66670 (21.6)	69165 (22.1)	70935 (21.9)		<0.001
45-64	170876 (60.7)	166030 (60.5)	167810 (60.2)	174765 (60.0)	181845 (58.9)	182905 (58.4)	187350 (57.8)		<0.001
65 or above	51348 (18.2)	50080 (18.3)	51480 (18.5)	54040 (18.5)	58930 (19.1)	59530 (19.0)	64230 (19.8)		<0.001
Gender (%)								<0.001	
Male	198491 (70.5)	195350 (71.2)	196820 (70.7)	203735 (69.9)	216650 (70.2)	218295 (69.7)	227080 (70.1)		<0.001
Female	83016 (29.5)	79000 (28.8)	81725 (29.3)	87615 (30.1)	92075 (29.8)	94810 (30.3)	96965 (29.9)		<0.001
Missing	0 (0.0)	15 (0.0)	35 (0.0)	85 (0.0)	40 (0.0)	130 (0.0)	5 (0.0)		
Race (%)								<0.001	
White	178031 (63.2)	180550 (65.8)	183125 (65.7)	193560 (66.4)	202205 (65.5)	207155 (66.1)	214760 (66.3)		<0.001
Black	27402.8 (9.7)	27045 (9.9)	26625 (9.6)	27630 (9.5)	29145 (9.4)	28025 (8.9)	29290 (9.0)		<0.001
Hispanic	37280 (13.2)	36670 (13.4)	38575 (13.8)	38905 (13.3)	43390 (14.1)	45870 (14.6)	49135 (15.2)		<0.001
Asian or Pacific Islander	2235 (0.8)	2370 (0.9)	2680 (1.0)	2855 (1.0)	3565 (1.2)	3520 (1.1)	3840 (1.2)		<0.001
Native American	5056 (1.8)	5985 (2.2)	5720 (2.1)	5910 (2.0)	6725 (2.2)	7140 (2.3)	7565 (2.3)		<0.001
Other	7134 (2.5)	7760 (2.8)	6940 (2.5)	7785 (2.7)	7780 (2.5)	8305 (2.7)	9085 (2.8)		0.005
Missing	24368.5 (8.7)	13985 (5.1)	14915 (5.4)	14790 (5.1)	15955 (5.2)	13220 (4.2)	10375 (3.2)		
Median household income national quartile for patient ZIP Code (%)								<0.001	
< 15,000	7000 (2.4)	8210 (2.9)	8520 (3.0)	8575 (2.9)	8560 (2.8)	8440 (2.7)	8575 (2.6)		<0.001

Table 3 Clinical Outcomes, Length of Hospital Stay and Hospital Charges of Hospitalized Alcoholic Hepatitis Patients, 2011 to 2017

Characteristic	AH-related admission							p-value ¹	
	2011	2012	2013	2014	2015	2016	2017	Overall	Between-group
n	281506	274365	278580	291435	308765	313235	324050		
Died during hospitalization								0.427	
No	265552 (94.3)	259370 (94.5)	263070 (94.4)	275390 (94.5)	292145 (94.6)	295385 (94.3)	305940 (94.4)		0.427
Yes	15002 (5.3)	14845 (5.4)	15310 (5.5)	15885 (5.5)	16385 (5.3)	17435 (5.6)	17785 (5.5)		0.427
Missing	952 (0.3)	150 (0.1)	200 (0.1)	160 (0.1)	235 (0.1)	415 (0.1)	325 (0.1)		
Disposition of patient (%)								<0.001	
Routine Discharge	176608 (62.7)	173735 (63.3)	174005 (62.5)	180090 (61.8)	188880 (61.2)	189940 (60.6)	194460 (60.0)		<0.001
Transfer to short-term hospital	9286 (3.3)	8670 (3.2)	8595 (3.1)	9230 (3.2)	9680 (3.1)	9875 (3.2)	10540 (3.3)		0.384
Died in hospital	15002 (5.3)	14845 (5.4)	15310 (5.5)	15885 (5.5)	16385 (5.3)	17435 (5.6)	17785 (5.5)		0.427
Other transfers, including skilled nursing facility, intermediate care, and another type of facility,	43799 (15.6)	41730 (15.2)	43125 (15.5)	46195 (15.9)	49560 (16.1)	50330 (16.1)	51365 (15.9)		<0.001
Home healthcare	25044 (8.9)	25170 (9.2)	26965 (9.7)	28515 (9.8)	32205 (10.4)	33275 (10.6)	35910 (11.1)		<0.001
Against medical advice	10616 (3.8)	9885 (3.6)	10220 (3.7)	11085 (3.8)	11750 (3.8)	11875 (3.8)	13610 (4.2)		<0.001
Discharged alive, destination unknown	200 (0.1)	180 (0.1)	160 (0.1)	275 (0.1)	70 (0.0)	90 (0.0)	55 (0.0)		<0.001
Missing	952 (0.3)	150 (0.1)	200 (0.1)	160 (0.1)	235 (0.1)	415 (0.1)	325 (0.1)		
Length of stay (median (Q1, Q3))	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)	4.00 (2.00, 7.00)		0.001
Total charges (median (Q1, Q3))	25242.62 (13777.63, 48382.97)	26239.99 (14340.00, 50438.00)	28252.50 (15588.74, 54069.00)	29545.00 (16278.50, 57028.00)	31408.00 (17336.00, 60304.99)	32939.50 (18145.00, 63841.50)	34874.50 (19190.00, 66530.49)		<0.001