



COMPARING CARDIOVASCULAR AND INFECTION COMPLICATIONS IN LIVER TRANSPLANT PATIENTS WITH NONALCOHOLIC STEATOHEPATITIS VERSUS OTHER INDICATIONS

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Introduction

- Nonalcoholic fatty liver disease (NAFLD) is now the most common cause of chronic liver disease.
- Liver damage in NAFLD leads to nonalcoholic steatohepatitis (NASH), which can progress to cirrhosis.
- Nonalcoholic steatohepatitis (NASH) has become a leading indication for liver transplant and significant amount of research has been conducted regarding the etiology and potential treatment options NASH

OBJECTIVE

- Assess the post liver transplant cardiovascular and infection complications in NASH patients to identify potential interventions that could mitigate these serious post-transplant complications

METHODS

- Single-center retrospective study
- All patients who underwent a liver transplant at a metropolitan hospital in Dallas, Texas from 01/2017 to 9/2021.
- 53 consecutive NASH patients who underwent liver transplant and 47 non-NASH patients who were matched using the propensity score matching analysis based on MELD, age, and gender at time of transplant
- Demographic, clinical, transplant-related outcomes (cardiovascular event, infection, mortality) were collected at one year.
- Groups were compared using the Student t-test, Chi square, Fisher's exact test, Wilcoxon rank-sum test, or Logistic regression

Results

- 100 liver transplant patients (53 NASH vs. 47 non-NASH) were analyzed.
- NASH patients had significantly higher mean BMI at time of transplant (31.9 vs 28.3, p=0.0005) and one-year post-transplant (33.1 vs. 28.9, p=0.0011).
- Similar cardiovascular outcomes were found at one year between NASH vs. non-NASH group: mean A1c (6.0 vs. 5.7, p=0.522), MI (0% vs. 0%), CVA (1.9% vs 0%, 0=1.000), and atrial fibrillation (15% vs. 6.4%, p=0.328).
- NASH patients were more likely to have post-transplant infection (60.4% vs. 31.9%, p=0.004) but the types of infection such as pneumonia, bacteremia, and skin-soft tissue infection were similar between the two groups
- Mean hospital length of stay, post-transplant hospitalization rate (54.7% NASH vs 46.8% non-NASH) and mortality rate at one month, two, three month and one year (7.6% NASH vs. 6.4% non-NASH, p=1.000) were similar between the two groups.

	Non-NASH	NASH
Age	61	62
Gender %		
Female	46.81	52.83
Male	53.19	47.17
Race %		
Caucasian	74.47	79.25
AA	8.51	0
Hispanic	6.38	0
Asian	2.13	1.89
Other	8.51	18.87
Organ %		
Liver	89.36	88.68
Liver/Kidney	10.64	11.32
MELD (Mean)	23.89	23.24
Smoking Status %		
Nonsmoking	76.6	75.47
Smoking	0	3.77
Former Smoker	23.4	20.75

	Non-NASH	NASH
LOS	13.5	10
Infection*		
No	68.09	39.62
Yes	31.91	60.38
# of Infection Events*		
1	19.15	45.28
2	10.64	11.32
3	0	1.89
4	2.13	1.89
Mortality at 1 Month		
No	97.87%	96.23%
Yes	2.13%	3.77%
2 Month		
No	97.87	96.23
Yes	2.13	3.77
3 Month		
No	97.87	96.23
Yes	2.13	3.77
1 year		
No	93.62	92.45
Yes	6.38	7.55

	Non-NASH		NASH	
	Pre	Post	Pre	Post
BMI*	28.34	28.97	31.93	33.1
Albumin Mean	3.30	4.13	3.18	4.02
A1c at OLTx	5.14	5.73	5.5	6.04
DM at OLTx %				
No	61.7		49.06	
Yes	38.3		50.94	
HTN at OLTx %				
No	53.19		33.96	
Yes	46.81		66.04	
CAD at OLTx %				
No	78.72		86.79	
Yes	21.28		13.21	
CHF at OLTx %				
No	95.74		94.34	
Yes	4.26		5.66	

Table 1. Comparison of NASH and non-NASH patient demographics

Table 2. Comparison of NASH and non-NASH Cardiovascular Outcomes, with BMI and Albumin

Table 3. Comparison of NASH and Non-NASH Infection rates, Number of Infection events, and Mortality at 1, 2, 3, and 12 months.

* indicates statistical significance between the two groups

Conclusion

- NASH patients are more likely to have post-transplant infection compared to non-NASH group (60.4% vs. 31.9%, p=0.004)
- Cardiovascular complications and mortality at one-year post-transplant were similar between the two groups.
- NASH patients are likely to have comorbidities that can make post-transplant care difficult, which may lead to increased infection rates
- Limitation of this study include the retrospective nature of analysis and limited post-transplant follow-up duration. Larger patient cohort and longer follow-up period will be included in future publication to further investigate the cardiovascular complications and other post-transplant complication of NASH patients.

DISCLOSURES / CONTACT

- No additional funding was provided for this study and the authors have no conflicts to declare.
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