

## CHARACTERISTICS, RISK FACTORS, AND OUTCOMES OF NEUTROPENIA FOR THE FIRST YEAR AFTER ORTHOTOPIC LIVER TRANSPLANTATION IN CHILDREN

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Table: Patient demographics and baseline characteristics of 98 pediatric liver transplant recipients

	Non-Neutropenia N = 60	Neutropenia N = 38	P-value
<b>Gender – no. (%)</b>			
-Male	29 (48.3)	17 (44.7)	0.73
-Female	31 (51.7)	21 (55.3)	
<b>Race – no. (%)</b>			
-Caucasian	43 (71.7)	31 (81.6)	0.80
-African American	11 (18.3)	5 (13.2)	
-Hispanic	3 (5)	1 (2.6)	
-Asian	2 (3.3)	1 (2.6)	
-Other	1 (1.6)	0	
Age at liver transplant (years)	4.9 ± 5.8	5.4 ± 6.2	0.69
<b>Underlying liver disease – no. (%)</b>			
-Biliary atresia	25 (41.7)	15 (39.5)	0.95
PELD/MELD (mean ± SD)	18.7 ± 14.2	21 ± 13.3	0.42
<b>Complication prior to LT – no. (%)</b>			
-Cirrhosis	38 (63.3)	26 (68.4)	0.61
-Portal hypertension	38 (63.3)	25 (65.8)	0.81
-Ascites	23 (38.3)	14 (36.8)	0.88
-Hepatic encephalopathy	13 (21.7)	5 (13.2)	0.29
-UGIB	3 (5)	8 (21.1)	0.02
-Hepatopulmonary syndrome	4 (6.7)	4 (10.5)	0.70
Weight velocity deficit (%)	11 (18.3)	16 (42.1)	0.01
Height velocity deficit (%)	11 (18.3)	12 (31.6)	0.13
Weight for height or BMI deficit (%)	5 (8.3)	4 (10.5)	0.71
<b>Risk of CMV status prior to LT – no. (%)</b>			
- High/Moderate	36 (60)	31 (81.6)	0.03
- Low	24 (40)	7 (18.4)	
<b>Risk of EBV status prior to LT (%)</b>			
- High/Moderate	49 (81.7)	33 (86.8)	0.50
- Low	11 (18.3)	5 (13.2)	
CMV disease (%)	7 (11.7)	12 (31.6)	0.02
EBV disease (%)	17 (28.3)	9 (23.7)	0.61
Acute cellular rejection (%)	18 (30)	8 (21.1)	0.33
Biliary stricture (%)	7 (11.7)	1 (2.6)	0.11
Portal vein/hepatic vein/artery thrombosis (%)	1 (1.7)	1 (2.6)	0.74
Portal vein/hepatic vein/artery stenosis (%)	5 (8.3)	3 (7.9)	0.94
PTLD (%)	3 (5)	1 (2.6)	0.56

### INTRODUCTION

- Prior studies in adults have shown that approximately 20-38 % of subjects undergoing solid organ transplant develop neutropenia.
- However, neutropenia in pediatric orthotopic liver transplant recipients has not been well characterized.
- The purpose of this study was to determine prevalence, risk factors and morbidity associated with neutropenia in pediatric liver transplant recipients.

### Method

- This single-center, retrospective chart review involved all patients aged less than 18 years old who underwent liver orthotopic transplantation at St. Louis Children's hospital from January 2013 to April 2019.
- Neutropenia was defined as absolute neutrophil count (ANC) value < 1,000/mm<sup>3</sup> in this study. The ANC was recorded from routine follow-up visits for the first year after liver transplantation (LT).

### Results

- We found 38.8% (38/98) of patients had neutropenia in the first year after liver transplantation.
- 50% (19/38) of all neutropenia episodes occurred between 3-6 months after transplant.
- Morbidity within 1 year of LT, including hospitalization, blood stream bacterial infection, and other infections, were not different between the non-neutropenia group and the neutropenia group.

### Results

- There was a significant inverse correlation between ANC and sulfamethoxazole/trimethoprim dose at nadir of neutropenia (p = 0.01). We also found inverse correlations between ANC and valacyclovir, acyclovir and mycophenolate mofetil dose, however they were not statistically significant.

### DISCUSSION

- Neutropenia is common in pediatric LT recipients within a year after LT.
- Incidence of infection was similar in patients with and without neutropenia among LT recipients.
- In contrast to a previous adult study, neutropenia was not found to be a predictor for mortality within the first year of LT.

### CONCLUSION

- Comparison between this cohort and other pediatric solid organ recipients (kidney, heart, and lung) are ongoing in order to understand the predictors and outcome of neutropenia in these population.

### REFERENCES

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2. Mavrakanas TA, Fournier MA, Clairoux S, et al. Neutropenia in kidney and liver transplant recipients: Risk factors and outcomes. *Clin Transplant.* 2017;31(10):10.1111/ctr.13058.