Changes in Disease Etiology of Deceased Donor Liver Transplantations Following Acuity Circles Policy Implementation

Adam M. Burton[1], David S. Goldberg[2]
[1]University of Miami Miller School of Medicine
[2]Department of Gastroenterology, University of Miami Miller School of Medicine

Introduction

The Acuity Circles (AC) allocation policy was implemented on February 4, 2020, with the primary intent of reducing disparities in access to deceased donor liver transplants (DDLTs). Overall, it has been successful at achieving this goal. However, changes in end-stage liver disease etiology following the policy change have not been well-characterized.

Objective

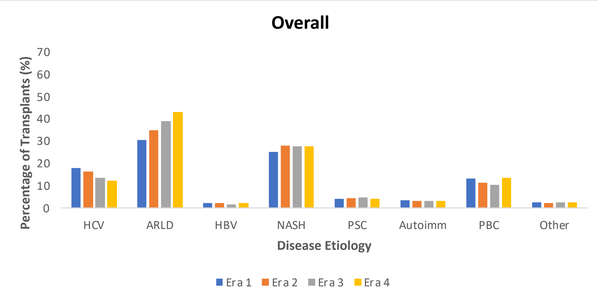
Our goal was to understand how primary etiology of disease in DDLTs has changed since implementation of AC.

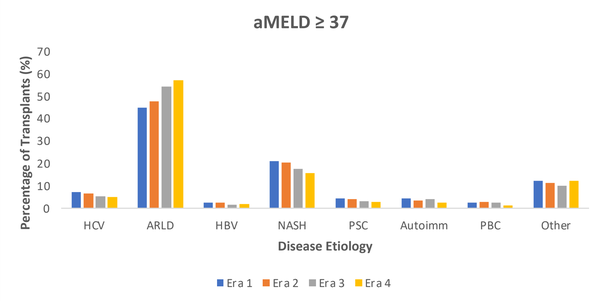
Methods

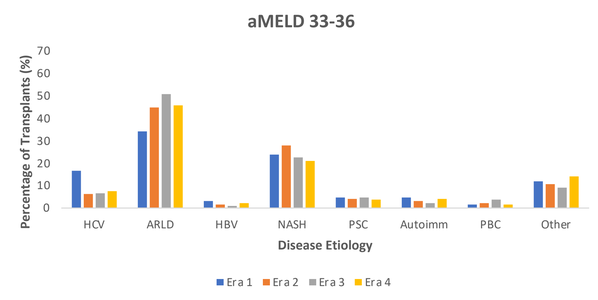
Data from the Organ Procurement Transplantation Network (OPTN) and United Network of Organ Sharing (UNOS) were analyzed to compare the primary classified etiologies of liver disease for DDLTs overall and based on allocation Model-for-end-stage-liver-disease (aMELD) categories used for AC sharing: aMELD≥37, aMELD 33-36, aMELD 29-32, aMELD 15-28, and aMELD≤14 DDLTs. Time was divided into four equivalent “eras” of 256 days duration by date of transplantation: 1) 9/10/18-5/23/19 (Era 1); 2) 5/24/19-2/3/20 (Era 2); 3) 2/4/20-10/16/20 (Era 3); and 4) 10/17/20-6/29/21 (Era 4).

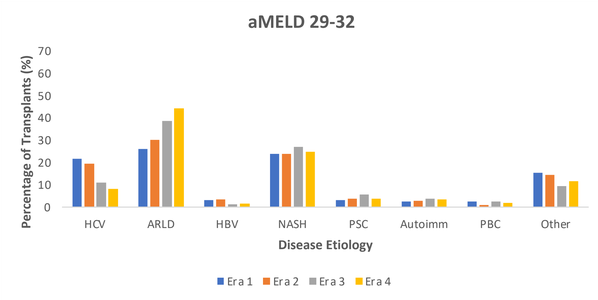
Results

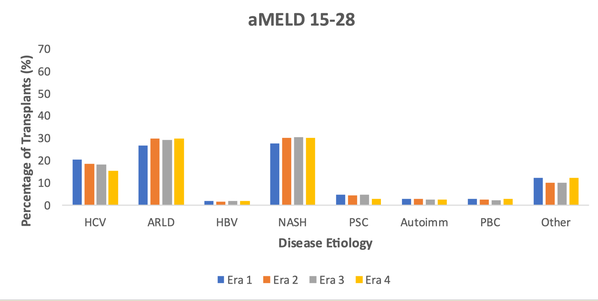
The figures below show percentage of transplants of primary disease etiology categorized by Era overall and for each aMELD category.

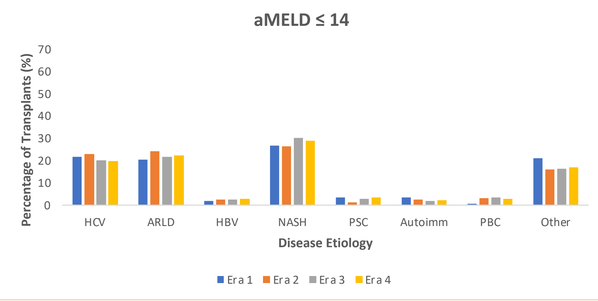












Discussion

The percentage of all DDLTs for alcohol-related liver disease (ARLD) increased from 32.3% pre-AC to 38.7% of DDLTs post AC. This was met with a corresponding decrease in the relative percentage of DDLTs related to Hepatitis C Virus (from 17.0% of DDLTs pre-AC to 12.2% post-AC), with the relative differences of other etiologies being a less than 1% difference pre- vs post- AC. There is a consistent increase in the share of DDLTs due to ARLD across each time-period. The rise in adult DDLTs for ARLD was most pronounced among aMELD ≥37 recipients, although similar trends were seen among aMELD 33-36 and aMELD 29-32 groups, but not aMELD 15-28 and aMELD ≤14 groups. The median age of adult DDLTs for ARLD decreased consistently over time for the aMELD ≥37 group, but not for the aMELD 33-36 and aMELD 29-32 groups.

Following implementation of AC, there was a relative increase in DDLTs due to ARLD. The younger age and high aMELD scores of these patients suggests these may be largely among patients with acute alcoholic hepatitis. This would align with published data on the overall increase in liver transplantation due to ARLD during the COVID-19 pandemic.[1]

References

1. Bittermann T, Mahmud N, Abt P. Trends in Liver Transplantation for Acute Alcohol-Associated Hepatitis During the COVID-19 Pandemic in the US. *JAMA Netw Open.* 2021;4(7):e2118713.