

Spectrum of gastroenterology and liver disease a changing trends

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Abstract

Background: The prevalence of GI and liver disease in the Pakistani population has increased remarkably over the recent years, reflecting an elevated burden on healthcare systems. Optimized health management and effective resource utilization in Healthcare facilities are based on timely documentation and reporting of disease patterns. **Aims:** To present data from the GODD (gastroenterology outpatient discharge diagnosis) registry, comparing annual trends of GI & liver disease incidence among patients presenting to the Aga Khan University Hospital. **Methods:** A review of electronic records was performed for all patients presenting to the Gastroenterology clinic, AKUH between 2013 and 2016. Collected information included patient characteristics and outpatient discharge diagnosis (primary and associated), based on a list of 72 approved diagnosis categories related to gastrointestinal and Liver Diseases. Annual variation in this data is presented in this paper. A single visit is counted for a specific year for each patient. **Result:** A total of 28,493 new patients were seen in the gastroenterology clinic. The mean age of the patients was 44.6±15.8 years with an overall higher representation of males (58%). The number of patients was seen to gradually increase during the study period from 6410 in 2013 to 8138 in 2016. Overall, 15,956 (56%) patients presented with GI disease which comprised APD(78.4%), FGID (14.98%) and others(6.62%), while patients with liver diseases were 12,535 (44%) and included HCV(50.3%), HBV(20.3%), HDV(7%), Hepatitis A(0.79%), Hepatitis E(0.59), NBNC(4.22%), NASH(5%), Hepatoma (1.80%), Others(10%). **Conclusion:** This report highlights annual trends in outpatient data from a major tertiary care center in Karachi, Pakistan. The analysis suggests a higher frequency of GI disorders, the majority of which is comprised of APD, GERD, gastritis. Among liver disorder, HCV, HBV was highest in our setting. Further efforts should focus on prioritization and effective management of these most commonly observed ailments.

Alcoholic liver disease (ALD) is a common indication for liver transplantation. Patients with ALD are often required to be abstinent for a period of time prior to being listed. This may reduce disease progression while on the waitlist and therefore alter their waitlist

outcomes compared to those with other disease etiologies. This study aimed to evaluate discrepancy of waitlist outcomes between those with ALD and non-alcoholic liver diseases (NALD). **Methods:** Data for adult patients listed for liver transplantation after the introduction of MELD-Na score based liver allocation (Jan 2016-June 2018) were obtained from the OPTN/UNOS. The following were selected as major liver disease etiologies: ALD, hepatitis C, non-alcoholic steatohepatitis (NASH), primary biliary cholangitis, and primary sclerosing cholangitis. Patients with overlapping diseases and those with an exception score were excluded. Patients were categorized into different listing MELD-Na score groups (6-20, 21-30, and >30) to identify variations of outcomes among the different score ranges within each etiology. Waitlist outcomes were studied by adjusting risk for recipient characteristics including age, gender, race, BMI, region, functional status, presence of diabetes, encephalopathy, life support use and MELD-Na components.

Total of 6220 ALD, 3815 NASH, 1613 hepatitis C and 1427 cholestatic disease patients were studied. Overall, NASH had the highest mortality whereas, ALD had the highest transplant probability and recovery on waitlist compared to other etiologies (Fig 1A). On adjusting for risk factors, NASH (HR 1.16, 95% CI 1.01-1.34, P=0.04) and cholestatic diseases (HR 1.20, 95% CI 1.00-1.44, P=0.04) had higher waitlist mortality compared to ALD (Fig 1B). Recovery on waitlist was significantly higher in ALD compared to other diseases. On examining MELD-Na groups, NASH had higher mortality (HR 1.35, 95% CI 1.09-1.67, P=0.005) in the MELD 20-30 group whereas cholestatic diseases had higher mortality (HR 1.45, 95% CI 1.01-2.09, P=0.04) in the MELD >30 group. In terms of transplant probability, all NALD groups had higher probability in the MELD 6-20 group whereas cholestatic diseases had lower probability (HR 0.77, 95% CI 0.63-0.95, P=0.01) in the MELD >30 group. Recovery was significantly lower in all NALD groups in the MELD 6-20 group whereas NASH was the only condition with lower recovery (HR 0.16, 95% CI 0.04-0.66, P=0.01) in the MELD 20-30 group. **Conclusion:** ALD patients have lower mortality and better recovery on waitlist compared to other etiologies, especially in patients with MELD score <30. NASH patients with

MELD 20-30 score and cholestatic disease patients with MELD >30 score have higher mortality compared to ALD patients. These results suggest that risk stratification and prioritization of liver allocation may need to be altered according to liver disease etiology. Detailed post-LT alcohol use data was retrospectively obtained from 11 ACCELERATE-AH sites. Consecutive patients with clinically-diagnosed severe AH, no prior diagnosis of liver disease or episodes of AH, who underwent LT from 2006-2018 and survived the initial LT admission were included. Alcohol use was evaluated in 3-month intervals post-LT based on NIAAA definitions and categorized into 4 levels of alcohol use: none (0), slips (1), binge or frequent (2), binge + frequent (3) (early onset of alcohol use within 1-year post-LT; late onset of alcohol use ≥ 1 year post-LT). None and slips were considered non-harmful, and binge and/or frequent patterns were harmful. Latent class analysis and joint to account for death and non-adherence were used to classify longitudinal patterns of alcohol use post-LT. Logistic and Cox regression, and multiple imputation methods examined associations of distinct patterns of alcohol use post-LT with pre-LT variables and post-LT survival. A total of 146 AH patients underwent LT [67% male, median pre-LT abstinence 59 days, 46% overt hepatic encephalopathy (HE)] with a median of 3.0 years (IQR 2.0-4.6) post-LT follow-up: 18% for ≥ 5 years. There were 17 post-LT deaths, of which 10 were alcohol-related. Only 5% of the 3-month intervals were missing alcohol use data.

We identified four distinct longitudinal patterns of post-LT alcohol use (Figure): abstinence/late slip ($n = 101$; 69%), abstinence/early slip ($n = 16$; 11%), early sustained harmful use ($n=15$; 10%), and early fluctuating harmful use ($n=14$; 10%). In multivariable analysis, compared to abstinence/late slip, early sustained harmful use (HR 12.4, $P < 0.001$) and early fluctuating harmful use (HR 5.7, $P < 0.001$) were associated with increased risk of death, whereas abstinence/early slip was associated with similar risk of death (HR 3.1, $P = 0.33$). In multivariable analysis, overt HE (OR 5.0, $P < 0.001$), and history of alcohol-related legal issues (OR 4.7, $P = 0.03$) were associated with early sustained harmful use, whereas only history of multiple rehabilitation attempts (OR 5.4, $P < 0.001$) was associated with early fluctuating harmful use. Conclusion: Among carefully selected LT for AH patients, 80% have abstinence or rare slips that do not affect survival. There are two distinct patterns of early, harmful alcohol use after LT for AH that are associated with pre-LT variables and higher risk of death. If confirmed in prospective studies, these results can help refine selection criteria and identify groups that need intensive early interventions for alcohol use disorder post-LT.

This work is partly presented at 13th International Conference on Clinical Gastroenterology, Hepatology and Endoscopy

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