analysis into patients who recovered or died depending on ward based care versus ITU.

Conclusion COVID pneumonia influenced the outcome of patients admitted with hepatic decompensation resulting in increased mortality. Alcohol was the commonest cause of underlying liver disease in both Pre-COVID and COVID period. Age, nature of hepatic decompensation (Gastro-intestinal bleeding, hepatic encephalopathy, spontaneous bacterial peritonitis) CLIF-C score for patients referred to ITU and average hospital stay was not much different in both the groups. The median MELD and ACLF grade were higher in patients who died compared to those who recovered.

P084 A MELD SCORE ≥ 19 PRIOR TO ANTI-THYMOCYTE GLOBULIN THERAPY FOR STEROID RESISTANT T CELL-MEDIATED REJECTION PREDICTS POOR 5-YEAR TRANSPLANT FREE SURVIVAL

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Background and Aims Steroid resistant T cell-mediated rejection is a risk factor for graft loss and patient mortality post liver transplant (LT). Anti-thymocyte globulin (ATG) therapy has been demonstrated to be an effective treatment for this condition but long term follow up data are limited. We aimed to identify risk factors for reduced 1-year and 5-year LT free survival post ATG use for steroid resistant T cell-mediated rejection.

Method We performed a retrospective observational study evaluating all LT patients who received ATG for steroid resistant cellular rejection between 01/2007–01/2020 at King's College Hospital. ATG was administered based on institutional practice and clinician choice. Patients were excluded if they received ATG without prior steroids. Clinical, demographic and laboratory data were collected and univariate analysis were performed.

Results 39 LT patients fulfilled inclusion/exclusion criteria. 13 did not achieve a 1-year LT-free survival and a further 5 did not achieve a 5-year LT free survival. Age, female sex, LT for

Abstract P084 Figure 1

an autoimmune liver disease, redo LT and pre-ATG AST, tacrolimus level, creatinine, albumin, haemoglobin, white cell count and differentials did not predict 1-year LT free survival. Variables predicting reduced 1-year LT free survival were:- increased time from LT when receiving ATG (AUC 0.82, 95% CI 0.69–0.96), histological overlap with chronic rejection (AUC 0.75, 95% CI 0.57–0.93), increased pre-ATG bilirubin (AUC 0.80, 95% CI 0.66–0.94), INR (AUC 0.71, 95% CI 0.52–0.89) and MELD (AUC 0.86, 95% CI 0.75–0.97). Survival analysis was performed to evaluate risk factors affecting 5-year LT free survival. Cut-off values for pre-ATG MELD and days post-LT receiving ATG were determined by Youden's Index. Histological overlap with chronic rejection (HR 3.33, 95% CI 1.10–10.11), receiving ATG >178 days post-LT (HR 5.86, 95% CI 1.82–18.83) and a pre-ATG MELD ≥ 19 (HR 8.84, 95% CI 3.25–24.04) (see figure 1) predicted a reduced 5-year survival.

Conclusion ATG use in patients with steroid resistant T cell-mediated rejection with a MELD ≥ 19 is associated with sub-optimal 5-year LT-free survival. ATG use and re-transplant candidacy needs to be re-evaluated in this clinical cohort.

P085 VIRTUAL TRANSPLANT ASSESSMENT IS FEASIBLE AND MAY INCREASE ACCESS TO LIVER TRANSPLANTATION

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Background It has been demonstrated that patients living further from a transplant centre are less likely to be transplanted in the UK and abroad. King's College Hospital (KCH) has collaborated with teams in Plymouth, North Bristol and Belfast to establish satellite transplant centres (SLTCs) to address this. However, the COVID-19 pandemic threatened to exacerbate this healthcare inequity by reducing travel and stopping patients undergoing transplant assessment at KCH. In response to this, we developed a virtual transplant assessment (VTA) pathway to ensure that patients at SLTCs were not disadvantaged through the pandemic.

Methods Data were retrospectively collected from all patients referred from our SLTCs and discussed at KCH transplant listing meetings between April 2020 and April 2021. Patients were either assessed face-to-face or virtually depending on the 'discussion in principle' (DIP) MDM between KCH and the corresponding SLTC. Demographic (age and sex), clinical (disease aetiology, smoking history, time of referral, time of full discussion and whether the patient was listed for transplant or transplanted) and laboratory data for calculation of prognostic scores were collected from the clinical notes. Continuous variables were analysed for normality using the D'Agostino and Pearson test and patients undergoing face-to-face assessments were directly compared with those undergoing VTA by *t* test if normally distributed or Mann-Whitney *U* test if non-normally distributed. Categorical data were analysed using Fisher's exact test. Time from listing to transplantation was compared between both groups by survival analysis.

Results During this time, 19 patients underwent VTA and 30 patients underwent face-to-face assessment. No patients were fully assessed from SLTCs between April and July 2020.

Abstract P085 Table 1 Table demonstrating a comparison of demographic, clinical and prognostic scores between patients assessed via VTA and FTFA. Results from t tests are displayed as mean (SD). Results from Mann Whitney U tests are displayed as median (IQR). Results from Fisher's exact tests are presented as number (%). Statistical significance was determined by a p value <0.05 and signified by *

Variable	N	VTA (n=19)	N	FTFA (n=30)	P value
Age	19	57.0 (49.0–60.0)	30	61.5 (56.8–64.3)	0.05
Sex (male)	19	13 (68.4%)	30	18 (60.0%)	0.76
Current/Ex-smoker	19	8 (42.1%)	29	14 (48.3%)	0.77
ARLD	19	9 (47.4%)	30	9 (30.0%)	0.24
NAFLD	19	2 (10.5%)	30	5 (16.7%)	0.69
Autoimmune liver diseases (PBC/PSC/AIH)	19	6 (31.6%)	30	13 (43.3%)	0.55
Redo transplantation	19	1 (5.3%)	30	0 (0.0%)	0.39
HCC	19	0 (0.0%)	30	2 (6.7%)	0.52
UKELD	19	54.5 (5.7)	30	54.1 (6.0)	0.81
MELD	19	12 (10.3–16.8)	30	10 (6.8–13.5)	0.10
CP score	19	8.6 (2.7)	30	7.8 (1.6)	0.24
Time from referral to completion of assessment	19	62 (48.0–125.0)	28	42 (21.0–54.5)	0.01*
Patient listed for transplant	19	18 (94.7%)	30	26 (86.7%)	0.64

Initially, face-to-face assessments occurred more frequently as the VTA pathway was established. This reversed with VTA being more common than face-to-face assessments in 2021. There was a trend for patients undergoing VTA to be younger than those undergoing face-to-face assessment. No significant differences were observed when comparing sex, smoking status, disease aetiologies, prognostic scores and listing status. The VTA pathway was associated with a significantly longer time from DIP to full discussion: – this likely reflects that patients were assessed who had been waiting from the pre-pandemic era via VTA and initial obstacles encountered as part of a new program. No difference was observed in time from listing to transplantation (table 1) – however, long-term outcomes are currently limited.

Conclusion VTA is feasible and will increase access to transplantation. Long-term post-transplant outcome data is required to fully assess the pathway.

P086

THE BILE ACID METABOLISM PATHWAY IS A SIGNIFICANT METABOLIC CHARACTERISTIC OF POSTOPERATIVE RECURRENCE OF HEPATOCELLULAR CARCINOMA UNDERGOING LIVER TRANSPLANTATION BEYOND MILAN CRITERIA

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Purpose Liver transplantation is one of the most important treatments for hepatocellular carcinoma (HCC), especially advanced HCC. But the prediction and prevention of postoperative recurrence of hepatocellular carcinoma undergoing liver transplantation beyond Milan criteria are still unknown. More and more evidence showed that metabolic biological progress plays a vital role in initial carcinogenesis and recurrence of HCC. Due to the high risk and lack of donor liver, it is urgent to reveal the mechanism of postoperative recurrence of HCC undergoing liver transplantation beyond Milan criteria. In our research, we used bioinformatics methods to find the metabolic characteristic of postoperative recurrence of hepatocellular carcinoma undergoing liver transplantation beyond Milan criteria.

Method We downloaded the data from Gene Expression Omnibus, TCGA, and normal liver tissues in the GTEx database, and we focused on the biological functions of metabolism-related genes. Firstly, we ran the Limma algorithm to find differential expression genes between recurrence and non-recurrence cancerous tissue of hepatocellular carcinoma undergoing liver transplantation beyond Milan criteria. Secondly, Gene Set Enrichment Analysis (GSEA) and Gene Set Variant Analysis (GSVA) were utilized to calculate the scores of the differential expression metabolism-related genes and gene sets. Finally, Kaplan-Meier analysis and Cox regression analysis were used to verify the clinical significance of the result. Bioinformatics methods are used to analyze the genomics, transcriptomics, and clinical data.

Results By analyzing the data from GEO, TCGA, and normal liver tissues of GTEx, metabolism-related gene sets were selected for further research. We ran the GSEA algorithm, and we found 'HALLMARK_BILE_ACID_METABOLISM' had the highest enrichment score. And we ran GSVA to confirm the importance of the 'HALLMARK_BILE_ACID_METABOLISM' gene set in HCC. Moreover, it's obvious the higher score of 'HALLMARK_BILE_ACID_METABOLISM' is relevant to the worse overall survival ($P < 0.01$) and median survival ($P < 0.01$).

Conclusion Our work revealed the importance of the bile acid metabolism pathway in postoperative recurrence of hepatocellular carcinoma undergoing liver transplantation beyond Milan criteria. It helps us to understand the mechanism of the bile acid metabolism pathway of hepatocellular carcinoma recurrence. It also helps us to predict the recurrence of HCC undergoing liver transplantation beyond Milan criteria. Targeting the bile acid metabolism pathway will be a hopeful strategy to predict and prevent the recurrence of hepatocellular carcinoma after liver transplantation.

P087

LIVER TRANSPLANT IN GLYCOGEN STORAGE DISEASE TYPE 1A; A CASE THAT DISPUTES CURRENT GUIDELINES

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Glycogen Storage Disease Type 1 (GSD1) is a rare autosomal recessive condition with an estimated incidence of around 1 in 100,000 births annually. GSD Type 1a describes